

## Technical Report for

**Stantec Consulting Services Inc.**

**MHIC-Tank 616-619, Marcus Hook, PA**

**Accutest Job Number: JB99970**

**Sampling Date: 07/24/15**

### Report to:

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**Total number of pages in report: 235**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.



**Nancy Cole**  
**Laboratory Director**

**Client Service contact: Marie Meidhof 732-329-0200**

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TN, TX, VA, WV, DoD ELAP (L-A-B L2248)

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Test results relate only to samples analyzed.

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### Sample Summary

Stantec Consulting Services Inc.

Job No: JB99970

MHIC-Tank 616-619, Marcus Hook, PA

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JB99970-1	07/24/15	08:40	DH/CD07/24/15	SO	Soil	MH-617-6-5
JB99970-2	07/24/15	09:00	DH/CD07/24/15	SO	Soil	MH-619-6-5
JB99970-3	07/24/15	09:25	DH/CD07/24/15	SO	Soil	MH-618-1-3
JB99970-11	07/24/15	14:00	DH/CD07/24/15	SO	Trip Blank Soil	TB_20150724
JB99970-11A	07/24/15	14:00	DH/CD07/24/15	AQ	Trip Blank Soil	TB_20150724

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Soil samples reported on a dry weight basis unless otherwise indicated on result page.

## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** Stantec Consulting Services Inc.

**Job No** JB99970

**Site:** MHIC-Tank 616-619, Marcus Hook, PA

**Report Date** 8/7/2015 12:51:26 PM

On 07/24/2015, 3 Sample(s), 2 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a maximum corrected temperature of 1.3 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JB99970 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

### Volatiles by GCMS By Method SW846 8260C

**Matrix:** SO

**Batch ID:** VE9987

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB99889-6MS, JB99889-6MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

**Matrix:** SO

**Batch ID:** VX6744

- All samples were analyzed within the recommended method holding time.
- Sample(s) JB99970-1MS, JB99970-2DUP were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.
- RPD(s) for Duplicate for Benzene, Toluene are outside control limits for sample JB99970-2DUP. High RPD due to possible sample analyzed from different vials.

### Extractables by GCMS By Method SW846 8270D

**Matrix:** SO

**Batch ID:** OP85890

- All samples were extracted within the recommended method holding time.
- Sample(s) JB99970-1MS, JB99970-1MSD were used as the QC samples indicated.
- All method blanks for this batch meet method specific criteria.

### Volatiles by GC By Method SW846 8011

**Matrix:** AQ

**Batch ID:** F:OP57086

- The data for SW846 8011 meets quality control requirements.
- JB99970-11A: Analysis performed at Accutest Laboratories, Orlando FL.

### Volatiles by GC By Method SW846 8011M

**Matrix:** SO

**Batch ID:** F:OP57066

- The data for SW846 8011M meets quality control requirements.
- JB99970-1: Analysis performed at Accutest Laboratories, Orlando FL.
- JB99970-2: Analysis performed at Accutest Laboratories, Orlando FL.
- JB99970-3: Analysis performed at Accutest Laboratories, Orlando FL.

**Metals By Method SW846 6010C**

<b>Matrix:</b> SO	<b>Batch ID:</b> MP87962
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- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JB99498-88MS, JB99498-88MSD, JB99498-88SDL were used as the QC samples for metals.

**Wet Chemistry By Method SM2540 G-97**

<b>Matrix:</b> SO	<b>Batch ID:</b> GN29620
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- The data for SM2540 G-97 meets quality control requirements.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest’s Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** Accutest New Jersey

**Job No:** JB99970

**Site:** SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

**Report Date:** 8/5/2015 6:56:01 PM

3 Sample(s), 1 Trip Blank(s) were collected on 07/24/2015 and were received at Accutest SE on 07/29/2015 properly preserved, at 2.8 Deg. C and intact. These Samples received an Accutest job number of JB99970. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section of this report.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Volatiles by GC By Method SW846 8011

**Matrix:** AQ

**Batch ID:** OP57086

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

OP57086-BS: Insufficient sample for MS/MSD.

### Volatiles by GC By Method SW846 8011M

**Matrix:** SO

**Batch ID:** OP57066

All samples were extracted within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) JB99715-1MS, JB99715-1MSD were used as the QC samples indicated.

Accutest Laboratories Southeast (ALSE) certifies that this report meets the project requirements for analytical data produced for the samples as received at ALSE and as stated on the COC. ALSE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the ALSE Quality Manual except as noted above. This report is to be used in its entirety. ALSE is not responsible for any assumptions of data quality if partial data packages are used.

Narrative prepared by:

Date: August 5, 2015

\_\_\_\_\_  
Kim Benham, Client Services (signature on file)

## Manual Integration Summary

Lab Sample ID	Analysis Type	File ID	Manual Integrations
GDD2458-IC2458	GCVOA	DD83443.D	1,2-Dibromoethane, 4-Bromofluorobenzene
OP57066-MS	GCVOA	DD83527.D	4-Bromofluorobenzene
OP57066-MSD	GCVOA	DD83528.D	1,2-Dibromo-3-chloropropane, 4-Bromofluorobenzene

3 Manual Integrations were found for JB99970

## Summary of Hits

**Job Number:** JB99970  
**Account:** Stantec Consulting Services Inc.  
**Project:** MHIC-Tank 616-619, Marcus Hook, PA  
**Collected:** 07/24/15



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
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**JB99970-1**      **MH-617-6-5**

Benzene		0.00050 J	0.00055	0.00015	mg/kg	SW846 8260C
Lead		4.9	2.7	0.33	mg/kg	SW846 6010C

**JB99970-2**      **MH-619-6-5**

Benzene		0.0015	0.00045	0.00012	mg/kg	SW846 8260C
Toluene		0.0019	0.00090	0.00019	mg/kg	SW846 8260C
Anthracene		0.0523	0.037	0.0083	mg/kg	SW846 8270D
Benzo(a)anthracene		0.0795	0.037	0.0072	mg/kg	SW846 8270D
Benzo(a)pyrene		0.0564	0.037	0.0089	mg/kg	SW846 8270D
Benzo(b)fluoranthene		0.0758	0.037	0.0073	mg/kg	SW846 8270D
Benzo(g,h,i)perylene		0.0278 J	0.037	0.012	mg/kg	SW846 8270D
Chrysene		0.0778	0.037	0.0091	mg/kg	SW846 8270D
Fluorene		0.104	0.037	0.028	mg/kg	SW846 8270D
Phenanthrene		0.444	0.037	0.0079	mg/kg	SW846 8270D
Pyrene		0.148	0.037	0.0084	mg/kg	SW846 8270D
Lead		15.7	2.3	0.28	mg/kg	SW846 6010C

**JB99970-3**      **MH-618-1-3**

Benzene		14.1	0.059	0.016	mg/kg	SW846 8260C
Lead		3.9	2.2	0.26	mg/kg	SW846 6010C

**JB99970-11**      **TB\_20150724**

No hits reported in this sample.

**JB99970-11A**      **TB\_20150724**

No hits reported in this sample.

**Sample Results**

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**Report of Analysis**

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Accutest Laboratories

## Report of Analysis

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Client Sample ID:	MH-617-6-5	Date Sampled:	07/24/15
Lab Sample ID:	JB99970-1	Date Received:	07/24/15
Matrix:	SO - Soil	Percent Solids:	73.6
Method:	SW846 8260C		
Project:	MHIC-Tank 616-619, Marcus Hook, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X156672.D	1	08/03/15	PR	n/a	n/a	VX6744
Run #2							

Run #	Initial Weight
Run #1	6.2 g
Run #2	

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.00050	0.00055	0.00015	mg/kg	J
108-88-3	Toluene	ND	0.0011	0.00023	mg/kg	
100-41-4	Ethylbenzene	ND	0.0011	0.00018	mg/kg	
1330-20-7	Xylene (total)	ND	0.0011	0.00030	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0011	0.00017	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0011	0.00015	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0022	0.00012	mg/kg	
91-20-3	Naphthalene	ND	0.0055	0.00021	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0022	0.00022	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0022	0.00021	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-122%
17060-07-0	1,2-Dichloroethane-D4	103%		68-124%
2037-26-5	Toluene-D8	105%		77-125%
460-00-4	4-Bromofluorobenzene	100%		72-130%

ND = Not detected      MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

## Report of Analysis

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Client Sample ID:	MH-617-6-5	Date Sampled:	07/24/15
Lab Sample ID:	JB99970-1	Date Received:	07/24/15
Matrix:	SO - Soil	Percent Solids:	73.6
Method:	SW846 8270D SW846 3546		
Project:	MHIC-Tank 616-619, Marcus Hook, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P51012.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.9 g	1.0 ml
Run #2		

## BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.044	0.0098	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.044	0.0085	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.044	0.011	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.044	0.0087	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.044	0.015	mg/kg	
218-01-9	Chrysene	ND	0.044	0.011	mg/kg	
86-73-7	Fluorene	ND	0.044	0.033	mg/kg	
85-01-8	Phenanthrene	ND	0.044	0.0094	mg/kg	
129-00-0	Pyrene	ND	0.044	0.0099	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	93%		33-127%
321-60-8	2-Fluorobiphenyl	99%		41-121%
1718-51-0	Terphenyl-d14	96%		44-137%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

## Report of Analysis

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Client Sample ID:	MH-617-6-5	Date Sampled:	07/24/15
Lab Sample ID:	JB99970-1	Date Received:	07/24/15
Matrix:	SO - Soil	Percent Solids:	73.6
Method:	SW846 8011M SW846 8011 M		
Project:	MHIC-Tank 616-619, Marcus Hook, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	DD83523.D	1	08/01/15	AFL	07/31/15	F:OP57066	F:GDD2459
Run #2							

Run #	Initial Weight	Final Volume
Run #1	5.04 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.00028	0.000094	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	4-Bromofluorobenzene	115%		63-137%		

(a) Analysis performed at Accutest Laboratories, Orlando FL.

ND = Not detected      MDL = Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MH-617-6-5	<b>Date Sampled:</b> 07/24/15
<b>Lab Sample ID:</b> JB99970-1	<b>Date Received:</b> 07/24/15
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 73.6
<b>Project:</b> MHIC-Tank 616-619, Marcus Hook, PA	

### Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	4.9	2.7	0.33	mg/kg	1	07/28/15	07/30/15 MS	SW846 6010C <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA37212

(2) Prep QC Batch: MP87962

RL = Reporting Limit  
MDL = Method Detection Limit

U = Indicates a result < MDL  
B = Indicates a result > = MDL but < RL

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## Report of Analysis

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Client Sample ID:	MH-619-6-5	Date Sampled:	07/24/15
Lab Sample ID:	JB99970-2	Date Received:	07/24/15
Matrix:	SO - Soil	Percent Solids:	88.6
Method:	SW846 8260C		
Project:	MHIC-Tank 616-619, Marcus Hook, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	X156673.D	1	08/03/15	PR	n/a	n/a	VX6744
Run #2							

Run #	Initial Weight
Run #1	6.3 g
Run #2	

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	0.0015	0.00045	0.00012	mg/kg	
108-88-3	Toluene	0.0019	0.00090	0.00019	mg/kg	
100-41-4	Ethylbenzene	ND	0.00090	0.00015	mg/kg	
1330-20-7	Xylene (total)	ND	0.00090	0.00025	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.00090	0.00014	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.00090	0.00012	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0018	0.000095	mg/kg	
91-20-3	Naphthalene	ND	0.0045	0.00017	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0018	0.00018	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0018	0.00017	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	100%		70-122%
17060-07-0	1,2-Dichloroethane-D4	103%		68-124%
2037-26-5	Toluene-D8	105%		77-125%
460-00-4	4-Bromofluorobenzene	101%		72-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

## Report of Analysis

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Client Sample ID: MH-619-6-5	Date Sampled: 07/24/15
Lab Sample ID: JB99970-2	Date Received: 07/24/15
Matrix: SO - Soil	Percent Solids: 88.6
Method: SW846 8270D SW846 3546	
Project: MHIC-Tank 616-619, Marcus Hook, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P51013.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.4 g	1.0 ml
Run #2		

## BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	0.0523	0.037	0.0083	mg/kg	
56-55-3	Benzo(a)anthracene	0.0795	0.037	0.0072	mg/kg	
50-32-8	Benzo(a)pyrene	0.0564	0.037	0.0089	mg/kg	
205-99-2	Benzo(b)fluoranthene	0.0758	0.037	0.0073	mg/kg	
191-24-2	Benzo(g,h,i)perylene	0.0278	0.037	0.012	mg/kg	J
218-01-9	Chrysene	0.0778	0.037	0.0091	mg/kg	
86-73-7	Fluorene	0.104	0.037	0.028	mg/kg	
85-01-8	Phenanthrene	0.444	0.037	0.0079	mg/kg	
129-00-0	Pyrene	0.148	0.037	0.0084	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	83%		33-127%
321-60-8	2-Fluorobiphenyl	88%		41-121%
1718-51-0	Terphenyl-d14	91%		44-137%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

## Report of Analysis

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Client Sample ID:	MH-619-6-5	Date Sampled:	07/24/15
Lab Sample ID:	JB99970-2	Date Received:	07/24/15
Matrix:	SO - Soil	Percent Solids:	88.6
Method:	SW846 8011M SW846 8011 M		
Project:	MHIC-Tank 616-619, Marcus Hook, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	DD83524.D	1	08/01/15	AFL	07/31/15	F:OP57066	F:GDD2459
Run #2							

Run #	Initial Weight	Final Volume
Run #1	5.08 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.00023	0.000078	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	4-Bromofluorobenzene	116%		63-137%		

(a) Analysis performed at Accutest Laboratories, Orlando FL.

ND = Not detected      MDL = Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MH-619-6-5	<b>Date Sampled:</b> 07/24/15
<b>Lab Sample ID:</b> JB99970-2	<b>Date Received:</b> 07/24/15
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 88.6
<b>Project:</b> MHIC-Tank 616-619, Marcus Hook, PA	

### Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	15.7	2.3	0.28	mg/kg	1	07/28/15	07/30/15 MS	SW846 6010C <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA37212

(2) Prep QC Batch: MP87962

RL = Reporting Limit  
 MDL = Method Detection Limit

U = Indicates a result < MDL  
 B = Indicates a result > = MDL but < RL

4.2  
 4

Accutest Laboratories

## Report of Analysis

Page 1 of 1

Client Sample ID:	MH-618-1-3	Date Sampled:	07/24/15
Lab Sample ID:	JB99970-3	Date Received:	07/24/15
Matrix:	SO - Soil	Percent Solids:	87.9
Method:	SW846 8260C		
Project:	MHIC-Tank 616-619, Marcus Hook, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	E227923.D	1	07/30/15	TDN	n/a	n/a	VE9987
Run #2							

Run #	Initial Weight	Final Volume	Methanol Aliquot
Run #1	5.1 g	10.0 ml	100 ul
Run #2			

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	14.1	0.059	0.016	mg/kg	
108-88-3	Toluene	ND	0.12	0.025	mg/kg	
100-41-4	Ethylbenzene	ND	0.12	0.019	mg/kg	
1330-20-7	Xylene (total)	ND	0.12	0.032	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.12	0.018	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.12	0.016	mg/kg	
98-82-8	Isopropylbenzene	ND	0.24	0.013	mg/kg	
91-20-3	Naphthalene	ND	0.59	0.022	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.24	0.024	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.24	0.023	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	96%		70-122%
17060-07-0	1,2-Dichloroethane-D4	101%		68-124%
2037-26-5	Toluene-D8	99%		77-125%
460-00-4	4-Bromofluorobenzene	103%		72-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

## Report of Analysis

Page 1 of 1

Client Sample ID: MH-618-1-3	Date Sampled: 07/24/15
Lab Sample ID: JB99970-3	Date Received: 07/24/15
Matrix: SO - Soil	Percent Solids: 87.9
Method: SW846 8270D SW846 3546	
Project: MHIC-Tank 616-619, Marcus Hook, PA	

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1	2P51014.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
Run #2							

Run #	Initial Weight	Final Volume
Run #1	30.8 g	1.0 ml
Run #2		

## BN Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	0.037	0.0083	mg/kg	
56-55-3	Benzo(a)anthracene	ND	0.037	0.0071	mg/kg	
50-32-8	Benzo(a)pyrene	ND	0.037	0.0089	mg/kg	
205-99-2	Benzo(b)fluoranthene	ND	0.037	0.0073	mg/kg	
191-24-2	Benzo(g,h,i)perylene	ND	0.037	0.012	mg/kg	
218-01-9	Chrysene	ND	0.037	0.0091	mg/kg	
86-73-7	Fluorene	ND	0.037	0.028	mg/kg	
85-01-8	Phenanthrene	ND	0.037	0.0079	mg/kg	
129-00-0	Pyrene	ND	0.037	0.0083	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
4165-60-0	Nitrobenzene-d5	87%		33-127%
321-60-8	2-Fluorobiphenyl	92%		41-121%
1718-51-0	Terphenyl-d14	89%		44-137%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

## Report of Analysis

Page 1 of 1

Client Sample ID:	MH-618-1-3	Date Sampled:	07/24/15
Lab Sample ID:	JB99970-3	Date Received:	07/24/15
Matrix:	SO - Soil	Percent Solids:	87.9
Method:	SW846 8011M SW846 8011 M		
Project:	MHIC-Tank 616-619, Marcus Hook, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	DD83525.D	1	08/01/15	AFL	07/31/15	F:OP57066	F:GDD2459
Run #2							

Run #	Initial Weight	Final Volume
Run #1	5.08 g	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.00024	0.000078	mg/kg	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	4-Bromofluorobenzene	115%		63-137%		

(a) Analysis performed at Accutest Laboratories, Orlando FL.

ND = Not detected      MDL = Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Report of Analysis

<b>Client Sample ID:</b> MH-618-1-3	<b>Date Sampled:</b> 07/24/15
<b>Lab Sample ID:</b> JB99970-3	<b>Date Received:</b> 07/24/15
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 87.9
<b>Project:</b> MHIC-Tank 616-619, Marcus Hook, PA	

### Metals Analysis

Analyte	Result	RL	MDL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	3.9	2.2	0.26	mg/kg	1	07/28/15	07/30/15 MS	SW846 6010C <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA37212

(2) Prep QC Batch: MP87962

RL = Reporting Limit  
 MDL = Method Detection Limit

U = Indicates a result < MDL  
 B = Indicates a result > = MDL but < RL

4.3  
 4

Accutest Laboratories

## Report of Analysis

Page 1 of 1

Client Sample ID: TB_20150724	Date Sampled: 07/24/15
Lab Sample ID: JB99970-11	Date Received: 07/24/15
Matrix: SO - Trip Blank Soil	Percent Solids: n/a
Method: SW846 8260C	
Project: MHIC-Tank 616-619, Marcus Hook, PA	

Run #1	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #2	X156671.D	1	08/03/15	PR	n/a	n/a	VX6744

Run #1	Initial Weight
Run #2	5.0 g

## VOA Special List

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.00050	0.00013	mg/kg	
108-88-3	Toluene	ND	0.0010	0.00021	mg/kg	
100-41-4	Ethylbenzene	ND	0.0010	0.00016	mg/kg	
1330-20-7	Xylene (total)	ND	0.0010	0.00027	mg/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	0.0010	0.00015	mg/kg	
135-98-8	sec-Butylbenzene	ND	0.0020	0.00017	mg/kg	
98-06-6	tert-Butylbenzene	ND	0.0020	0.00021	mg/kg	
110-82-7	Cyclohexane	ND	0.0020	0.00032	mg/kg	
107-06-2	1,2-Dichloroethane	ND	0.0010	0.00013	mg/kg	
110-54-3	Hexane	ND	0.0050	0.00039	mg/kg	
98-82-8	Isopropylbenzene	ND	0.0020	0.00011	mg/kg	
91-20-3	Naphthalene	ND	0.0050	0.00019	mg/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	0.0020	0.00020	mg/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	0.0020	0.00019	mg/kg	

CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits
1868-53-7	Dibromofluoromethane	98%		70-122%
17060-07-0	1,2-Dichloroethane-D4	101%		68-124%
2037-26-5	Toluene-D8	105%		77-125%
460-00-4	4-Bromofluorobenzene	100%		72-130%

ND = Not detected MDL = Method Detection Limit

RL = Reporting Limit

E = Indicates value exceeds calibration range

J = Indicates an estimated value

B = Indicates analyte found in associated method blank

N = Indicates presumptive evidence of a compound

Accutest Laboratories

## Report of Analysis

Page 1 of 1

Client Sample ID:	TB_20150724	Date Sampled:	07/24/15
Lab Sample ID:	JB99970-11A	Date Received:	07/24/15
Matrix:	AQ - Trip Blank Soil	Percent Solids:	n/a
Method:	SW846 8011 SW846 8011		
Project:	MHIC-Tank 616-619, Marcus Hook, PA		

Run #	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
Run #1 <sup>a</sup>	DD83548.D	1	08/03/15	AFL	08/03/15	F:OP57086	F:GDD2460
Run #2							

Run #	Initial Volume	Final Volume
Run #1	38.9 ml	2.0 ml
Run #2		

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.018	0.0090	ug/l	
CAS No.	Surrogate Recoveries	Run# 1	Run# 2	Limits		
460-00-4	4-Bromofluorobenzene	104%		63-137%		

(a) Analysis performed at Accutest Laboratories, Orlando FL.

ND = Not detected      MDL = Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

## Misc. Forms

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### Custody Documents and Other Forms

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**Includes the following where applicable:**

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

SLL  
STB/SSTB

**CHAIN OF CUSTODY**

2235 Route 130, Dayton, NJ 08810  
TEL: 732-329-0200 FAX: 732-329-3499/3480  
www.accutest.com

FED-EX Tracking # \_\_\_\_\_ Bottle Order Control # \_\_\_\_\_  
Accutest Quote # JB99970

Client / Reporting Information		Project Information		Requested Analysis (see TEST CODE sheet)										Matrix Codes		
Company Name <u>Starter</u>		Project Name <u>MHC Tanks 616-619</u>		VOCs via EPA 816 (SW-846) (C-LD) (short) * VOCs via EPA 811 (EPA only) (short) * Metals via SW-846 (C-LD) (short) SVOCs via SW-846 (C-LD) (short) VOCs via EPA Method 8210 (long) SVOCs via EPA Method 8270 (long) Metals by method 6010/6020 (long)										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank		
Street Address <u>1060 Andrew Dr</u>		Street <u>Marcus Hook Pa</u>		Billing Information (if different from Report to) Company Name _____ Street Address _____ City _____ State _____ Zip _____ Client Purchase Order # _____ City _____ State _____ Zip _____ Project Manager <u>Jennifer Manges</u> Attention: _____												
City <u>West Chester, Pa</u>		City <u>Pa</u>														
Project Contact <u>Jennifer Manges / Jennifer Manges@starter.com</u>		Project #														
Phone # <u>610-840-2500</u>		Client Purchase Order #														
Samplers Name(s) <u>D. Hopkins, C. Rubinski</u>		Project Manager														
Field ID / Point of Collection		MECH/ID Vial #		Date		Time		Sampled by		Matrix		# of bottles		Number of preserved bottles		LAB USE ONLY
1 MH-617-6-5				7/24/15		0840		DA		Soil		6		3 2 1		B3
2 MH-619-6-5						0900										E72
3 MH-618-1-3						0925										14K6
4 API-5-BH-15-6-0-2-20150724						1225										40107
5 API-5-BH-15-6-6-7-20150724						1240										P65
6 API-5-BH-15-7-0-2-20150724						1120										V130
7 API-5-BH-15-7-6-8-20150724						1150										
8 API-5-BH-15-5-0-2-20150724						1310										
9 API-5-BH-15-5-9-9-5-20150724						1340										
10 API-5-BH-15-10-2-20150724						1400										INITIAL ASSESSMENT JK
11 TB-20150724										TB		3 2		1		LABEL VERIFICATION JK
Turnaround Time (Business days)		Approved By (Accutest PM): / Date:		Data Deliverable Information										Comments / Special Instructions		
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 2 Day RUSH <input type="checkbox"/> 1 Day RUSH <input type="checkbox"/> Other _____ Emergency & Rush TIA data available VIA Lablink		Rec'd at Exton Service Center 7/24/15 1600		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced (Level 3+4) <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NJ Data of Known Quality Protocol Reporting Commercial "A" = Results Only, Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data										* See constituents of concern for soil list attached, "short" is short list and "long" with long list		
Reinquished by Sampler Date Time: 7/24/15 1515		Received By: [Signature] Date Time: 7/24/15 1810		Sample Custody must be documented below each time samples change possession, including courier delivery.										Reinquished By: [Signature] Date Time: 7/24/15 1600		
Reinquished by Sampler Date Time: 7/24/15 1810		Received By: [Signature] Date Time: 7/24/15 1810		Reinquished By: [Signature] Date Time: 7/24/15 1810										Received By: [Signature] Date Time: 7/24/15 1810		
Reinquished by: [Signature] Date Time: 7/24/15 1810		Received By: [Signature] Date Time: 7/24/15 1810		Custody Seal # _____ <input type="checkbox"/> Intact <input type="checkbox"/> Not intact										Preserved where applicable <input type="checkbox"/> On Ice <input checked="" type="checkbox"/> Cooler Temp. 1.6°C		

5.1  
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NABSP Y / (N) Circle. Circle either DIH2O or NaHSO4.

SAMPLE #	MeOH VIAL	DIH2O / NaHSO4	DIH2O / NaHSO4
1	1496	1902	1904
2	1685	3739	3730
3	1683	1896	1918
4	1177	1946	3724
5	1650	1941	1942
6	1693	1914	1917
7	1705	1939	1950
8	1709	1891	1914
9	1700	1948	3728
10	1684	1938	3729
11		101	

## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** JB99970      **Client:** \_\_\_\_\_      **Project:** \_\_\_\_\_  
**Date / Time Received:** 7/24/2015 6:10:00 PM      **Delivery Method:** \_\_\_\_\_      **Airbill #s:** \_\_\_\_\_

Cooler Temps (Raw Measured) °C: Cooler 1: (1.6);  
 Cooler Temps (Corrected) °C: Cooler 1: (1.3);

**Cooler Security**      Y or N      Y or N  
 1. Custody Seals Present:        3. COC Present:    
 2. Custody Seals Intact:        4. Smpl Dates/Time OK

**Cooler Temperature**      Y or N  
 1. Temp criteria achieved:    
 2. Cooler temp verification: \_\_\_\_\_ IR Gun  
 3. Cooler media: \_\_\_\_\_ Ice (Bag)  
 4. No. Coolers: \_\_\_\_\_ 1

**Quality Control Preservation**      Y or N      N/A  
 1. Trip Blank present / cooler:     
 2. Trip Blank listed on COC:     
 3. Samples preserved properly:    
 4. VOCs headspace free:

**Sample Integrity - Documentation**      Y or N  
 1. Sample labels present on bottles:    
 2. Container labeling complete:    
 3. Sample container label / COC agree:

**Sample Integrity - Condition**      Y or N  
 1. Sample recvd within HT:    
 2. All containers accounted for:    
 3. Condition of sample: \_\_\_\_\_ Intact

**Sample Integrity - Instructions**      Y or N      N/A  
 1. Analysis requested is clear:    
 2. Bottles received for unspecified tests    
 3. Sufficient volume recvd for analysis:    
 4. Compositing instructions clear:     
 5. Filtering instructions clear:

Comments

5.1  
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JB99970

**Comprehensive COC List for Sunoco Characterizations (Sept. 2013)**

VOCs by EPA Method 8260	CAS No.	SVOCs by EPA Method 8270	CAS No.
Benzene	71-43-2	Acenaphthene	83-32-9
Butylbenzene, sec-	135-98-8	Anthracene	120-12-7
Butylbenzene, tert-	98-06-6	Benzo(a)anthracene	56-55-3
Cumene	98-82-8	Benzo(a)pyrene	50-32-8
Cyclohexane	110-82-7	Benzo(b)fluoranthene	205-99-2
Dichloroethane, 1,2-	107-06-2	Benzo(g,h,i)perylene	191-24-2
Ethylbenzene	100-41-4	Benzo(k)fluoranthene	207-08-9
Hexane	110-54-3	Biphenyl, 1,1-	92-52-4
Methyl tert butyl ether	1634-04-4	Bis(2-ethylhexyl) phthalate	117-81-7
Toluene	108-88-3	Chrysene	218-01-9
Trimethylbenzene, 1,2,4-	95-63-6	Cresol, m- (3-methylphenol)	108-39-4
Trimethylbenzene, 1,3,5-	108-67-8	Cresol, o- (2-methylphenol)	95-48-7
Xylenes	1330-20-7	Cresol, p- (4-methylphenol)	106-44-5
		Dibenz(a,h)anthracene	53-70-3
		Diethyl phthalate	84-66-2
		Dimethylphenol, 2,4-	105-67-9
		Dibutyl phthalate, n-	84-74-2
		Dinitrophenol, 2,4-	51-28-5
		Fluoranthene	206-44-0
		Fluorene	86-73-7
		Indeno(1,2,3-cd)pyrene	193-39-5
		Methylnaphthalene, 2-	91-57-6
		Naphthalene	91-20-3
		Nitrophenol, 4-	100-02-7
		Phenanthrene	85-01-8
		Phenol	108-95-2
		Pyrene	129-00-0
		Pyridine	110-86-1
		Quinoline	91-22-5
<b>EDB by EPA Method 8011</b>	<b>CAS No.</b>		
Ethylene Dibromide	106-93-4		
<b>Metals by Method 6010/6020</b>	<b>CAS No.</b>		
Cobalt	7440-48-4		
Lead	7439-92-1		
Nickel	7440-02-0		
Vanadium	7440-62-2		
Zinc	7440-66-6		

List from PADEP SERO Crude Oil Parameters for Corrective Action (CDB | SERO | PA DEP | 9 Aug 2013) combined with PADEP Petroleum Shortlist (leaded and unleaded gasoline and No. 2, 4, 5, 6 Fuel Oils).

JB99970

Constituents of Concern for Soil  
 Simons-Duland Refinery  
 Philadelphia, Pennsylvania  
 Marcus Hook

METALS	CAS No.	Method
Lead (total)	74399-92-1	SW846 6010B/C-LD
VOLATILE ORGANIC COMPOUNDS		
1,2-Dichloroethane ✓	107-06-2	SW846 8260B/C-LD
1,2,4-Trimethylbenzene ✓	95-63-6	
1,3,5-Trimethylbenzene ✓	108-67-8	
Benzene ✓	71-43-2	
Cumene ✓	98-82-8	
Ethylbenzene ✓	100-41-4	
Methyl tertiary butyl ether ✓	1634-04-4	
Toluene ✓	108-88-3	
Xylenes (total) ✓	1330-20-7	
Ethylene dibromide ✓	106-93-4	
SEMI-VOLATILE ORGANIC COMPOUNDS		
Anthracene ✓	120-12-7	SW846 8270C/D-LD
Benzolanthracene ✓	56-55-3	
Benzo (g,h,i) perylene ✓	191-24-2	
Benzopyrene ✓	50-32-8	
Benzofluoranthene ✓	205-99-2	
Chrysene ✓	218-01-9	
Fluorene ✓	86-73-7	
Naphthalene** ✓	91-20-3	
Phenanthrene ✓	85-01-8	
Pyrene ✓	129-00-0	

\*\* For tank investigations, Naphthalene is to be run using analytical method SW846 8260 and should be appropriately marked on the chain of custody.

Notes:  
 As indicated by the "LD", all samples are to be analyzed using the lowest dilution possible.



**Job Change Order:** JB99970

**Requested Date:** 7/31/2015      **Received Date:** 7/24/2015  
**Account Name:** Startec Consulting Services Inc.      **Due Date:** 8/7/2015  
**Project Description:** MHIC-Tank 616-619, Marcus Hook, PA      **Deliverable:** REDT2  
**CSR:** mariem      **TAT (Days):** 14

**Sample #:** JB99970-4 to 10

**Change:**

Please delete Y8011EDB <subbed to ALSE> and add VMS+EDB. Please also move these samples to A job and revise project to SECORPAE65299.

**Dept:**

=====

## JB99970: Chain of Custody Page 6 of 8

**Above Changes Per:** J. DeBoer

**Date/Time:** 7/31/2015 5:31:22 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service Representative.



Job Change Order: JB99970

Requested Date: 8/14/2015 Received Date: 7/24/2015  
 Account Name: Startec Consulting Services Inc. Due Date: 8/7/2015  
 Project Description: MHIC-Tank 616-619, Marcus Hook, PA Deliverable: REDT2  
 CSR: mariem TAT (Days): 14

=====  
**Sample #:** JB99970-1 to 3 **Change:**  
 Please delete Naphthalene from the 8270 data.  
**Dept:**

=====  
**Sample #:** JB99970-1 to 3, 11 **Change:**  
 Please add VMS+NAP; please add to the original report.  
**Dept:**

**Above Changes Per:** L. Votta **Date/Time:** 8/14/2015 12:27:48 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service Representative.



**Job Change Order:** JB99970A

<b>Requested Date:</b>	8/14/2015	<b>Received Date:</b>	7/24/2015
<b>Account Name:</b>	Startec Consulting Services Inc.	<b>Due Date:</b>	8/7/2015
<b>Project Description:</b>	MHIC AOI 5 Demo Characterization	<b>Deliverable:</b>	REDT2
<b>CSR:</b>	marlem	<b>TAT (Days):</b>	14

**Sample #:** JB99970A-4 to 10

**Change:**

Please add Phenanthrene and Di-n-butyl Phthalate to the 8270 data reported for these samples. The project specific list is also being updated.

**Dept:**

=====

**Above Changes Per:** L. Votta

**Date/Time:** 8/14/2015 12:30:38 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Accutest Client Service Representative.

Page 1 of 1

### Internal Sample Tracking Chronicle

Stantec Consulting Services Inc.

Job No: JB99970

MHIC-Tank 616-619, Marcus Hook, PA

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
<b>JB99970-1 Collected: 24-JUL-15 08:40 By: DH/CD Received: 24-JUL-15 By: AS</b>						
<b>MH-617-6-5</b>						
JB99970-1	SM2540 G-97	28-JUL-15 17:00	KP			%SOL
JB99970-1	SW846 8270D	29-JUL-15 19:41	AD	29-JUL-15	AQ	B8270SL
JB99970-1	SW846 6010C	30-JUL-15 18:28	MS	28-JUL-15	AA	PB
JB99970-1	SW846 8011M	01-AUG-15 00:31	AFL	31-JUL-15	AFL	V8011EDB
JB99970-1	SW846 8260C	03-AUG-15 14:04	PR			V8260SL
<b>JB99970-2 Collected: 24-JUL-15 09:00 By: DH/CD Received: 24-JUL-15 By: AS</b>						
<b>MH-619-6-5</b>						
JB99970-2	SM2540 G-97	28-JUL-15 17:00	KP			%SOL
JB99970-2	SW846 8270D	29-JUL-15 20:03	AD	29-JUL-15	AQ	B8270SL
JB99970-2	SW846 6010C	30-JUL-15 18:34	MS	28-JUL-15	AA	PB
JB99970-2	SW846 8011M	01-AUG-15 00:46	AFL	31-JUL-15	AFL	V8011EDB
JB99970-2	SW846 8260C	03-AUG-15 14:34	PR			V8260SL
<b>JB99970-3 Collected: 24-JUL-15 09:25 By: DH/CD Received: 24-JUL-15 By: AS</b>						
<b>MH-618-1-3</b>						
JB99970-3	SM2540 G-97	28-JUL-15 17:00	KP			%SOL
JB99970-3	SW846 8270D	29-JUL-15 20:24	AD	29-JUL-15	AQ	B8270SL
JB99970-3	SW846 8260C	30-JUL-15 16:02	TDN			V8260SL
JB99970-3	SW846 6010C	30-JUL-15 18:40	MS	28-JUL-15	AA	PB
JB99970-3	SW846 8011M	01-AUG-15 01:01	AFL	31-JUL-15	AFL	V8011EDB
<b>JB99970-11 Collected: 24-JUL-15 14:00 By: DH/CD Received: 24-JUL-15 By: AS</b>						
<b>TB_20150724</b>						
JB99970-11	SW846 8260C	03-AUG-15 12:42	PR			V8260SL2
<b>JB99970-11A Collected: 24-JUL-15 14:00 By: DH/CD Received: 24-JUL-15 By: AS</b>						
<b>TB_20150724</b>						
JB99970-11A	SW846 8011	03-AUG-15 18:23	AFL	03-AUG-15	AFL	V8011EDB

# Accutest Internal Chain of Custody

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA  
 Received: 07/24/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB99970-1.1	Secured Storage	Todd Shoemaker	07/28/15 10:32	Retrieve from Storage
JB99970-1.1	Todd Shoemaker	Secured Staging Area	07/28/15 10:32	Return to Storage
JB99970-1.1	Secured Staging Area	Todd Shoemaker	07/28/15 12:01	Retrieve from Storage
JB99970-1.1	Todd Shoemaker	Secured Storage	07/28/15 12:01	Return to Storage
JB99970-1.1	Secured Storage	Todd Shoemaker	07/28/15 12:03	Retrieve from Storage
JB99970-1.1	Todd Shoemaker	Secured Staging Area	07/28/15 12:03	Return to Storage
JB99970-1.1	Secured Staging Area	Ariel Alcalá	07/28/15 12:30	Retrieve from Storage
JB99970-1.1	Ariel Alcalá	Secured Storage	07/28/15 14:41	Return to Storage
JB99970-1.1	Secured Storage	Arielle Cocozza	07/29/15 04:42	Retrieve from Storage
JB99970-1.1	Arielle Cocozza	Humarah Bano	07/29/15 07:29	Custody Transfer
JB99970-1.1	Humarah Bano	Secured Storage	07/29/15 10:06	Return to Storage
JB99970-1.1.1	Ariel Alcalá	Metals Digestion	07/28/15 14:39	Digestate from JB99970-1.1
JB99970-1.1.2	Humarah Bano	Organics Prep	07/29/15 07:33	Extract from JB99970-1.1
JB99970-1.1.2	Organics Prep	Nida Rizvi	07/29/15 15:56	Extract from JB99970-1.1
JB99970-1.1.2	Nida Rizvi	Extract Storage	07/29/15 15:56	Return to Storage
JB99970-1.1.2	Extract Storage	Ashley Dye	07/29/15 17:56	Retrieve from Storage
JB99970-1.1.2	Ashley Dye	GCMS2P	07/29/15 17:56	Load on Instrument
JB99970-1.1.2	GCMS2P	Samta Patel	08/04/15 14:41	Unload from Instrument
JB99970-1.1.2	Samta Patel	Extract Freezer	08/04/15 14:41	Return to Storage
JB99970-1.2	Secured Storage	Todd Shoemaker	07/28/15 13:38	Retrieve from Storage
JB99970-1.2	Todd Shoemaker	Secured Staging Area	07/28/15 13:39	Return to Storage
JB99970-1.2	Secured Staging Area	Kruti Patel	07/28/15 14:30	Retrieve from Storage
JB99970-1.2	Kruti Patel	Secured Storage	07/28/15 15:49	Return to Storage
JB99970-1.3	Secured Storage	Bernadette Vassilatos	07/28/15 11:19	Retrieve from Storage
JB99970-1.3	Bernadette Vassilatos		07/28/15 11:19	Subcontract
JB99970-1.5	Secured Storage	Payal Rana	08/03/15 12:14	Retrieve from Storage
JB99970-1.5	Payal Rana	GCMSX	08/03/15 12:14	Load on Instrument
JB99970-1.5	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-1.5	Payal Rana		08/04/15 08:43	Depleted
JB99970-1.6	Secured Storage	Payal Rana	08/03/15 16:02	Retrieve from Storage
JB99970-1.6	Payal Rana	GCMSX	08/03/15 16:02	Load on Instrument
JB99970-1.6	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-1.6	Payal Rana		08/04/15 08:43	Depleted
JB99970-2.1	Secured Storage	Todd Shoemaker	07/28/15 10:32	Retrieve from Storage
JB99970-2.1	Todd Shoemaker	Secured Staging Area	07/28/15 10:32	Return to Storage
JB99970-2.1	Secured Staging Area	Todd Shoemaker	07/28/15 12:01	Retrieve from Storage
JB99970-2.1	Todd Shoemaker	Secured Storage	07/28/15 12:01	Return to Storage

5.3  
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# Accutest Internal Chain of Custody

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA  
 Received: 07/24/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB99970-2.1	Secured Storage	Todd Shoemaker	07/28/15 12:03	Retrieve from Storage
JB99970-2.1	Todd Shoemaker	Secured Staging Area	07/28/15 12:03	Return to Storage
JB99970-2.1	Secured Staging Area	Ariel Alcalá	07/28/15 12:30	Retrieve from Storage
JB99970-2.1	Ariel Alcalá	Secured Storage	07/28/15 14:41	Return to Storage
JB99970-2.1	Secured Storage	Arielle Cocozza	07/29/15 04:42	Retrieve from Storage
JB99970-2.1	Arielle Cocozza	Humarah Bano	07/29/15 07:29	Custody Transfer
JB99970-2.1	Humarah Bano	Secured Storage	07/29/15 10:06	Return to Storage
JB99970-2.1.1	Ariel Alcalá	Metals Digestion	07/28/15 14:39	Digestate from JB99970-2.1
JB99970-2.1.2	Humarah Bano	Organics Prep	07/29/15 07:33	Extract from JB99970-2.1
JB99970-2.1.2	Organics Prep	Nida Rizvi	07/29/15 15:56	Extract from JB99970-2.1
JB99970-2.1.2	Nida Rizvi	Extract Storage	07/29/15 15:56	Return to Storage
JB99970-2.1.2	Extract Storage	Ashley Dye	07/29/15 17:56	Retrieve from Storage
JB99970-2.1.2	Ashley Dye	GCMS2P	07/29/15 17:56	Load on Instrument
JB99970-2.1.2	GCMS2P	Samta Patel	08/04/15 14:41	Unload from Instrument
JB99970-2.1.2	Samta Patel	Extract Freezer	08/04/15 14:41	Return to Storage
JB99970-2.2	Secured Storage	Todd Shoemaker	07/28/15 13:38	Retrieve from Storage
JB99970-2.2	Todd Shoemaker	Secured Staging Area	07/28/15 13:39	Return to Storage
JB99970-2.2	Secured Staging Area	Kruti Patel	07/28/15 14:30	Retrieve from Storage
JB99970-2.2	Kruti Patel	Secured Storage	07/28/15 15:49	Return to Storage
JB99970-2.3	Secured Storage	Bernadette Vassilatós	07/28/15 11:19	Retrieve from Storage
JB99970-2.3	Bernadette Vassilatós		07/28/15 11:19	Subcontract
JB99970-2.5	Secured Storage	Payal Rana	08/03/15 12:14	Retrieve from Storage
JB99970-2.5	Payal Rana	GCMSX	08/03/15 12:14	Load on Instrument
JB99970-2.5	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-2.5	Payal Rana		08/04/15 08:43	Depleted
JB99970-2.6	Secured Storage	Payal Rana	08/03/15 16:02	Retrieve from Storage
JB99970-2.6	Payal Rana	GCMSX	08/03/15 16:02	Load on Instrument
JB99970-2.6	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-2.6	Payal Rana		08/04/15 08:43	Depleted
JB99970-3.1	Secured Storage	Todd Shoemaker	07/28/15 10:32	Retrieve from Storage
JB99970-3.1	Todd Shoemaker	Secured Staging Area	07/28/15 10:32	Return to Storage
JB99970-3.1	Secured Staging Area	Todd Shoemaker	07/28/15 12:01	Retrieve from Storage
JB99970-3.1	Todd Shoemaker	Secured Storage	07/28/15 12:01	Return to Storage
JB99970-3.1	Secured Storage	Todd Shoemaker	07/28/15 12:03	Retrieve from Storage
JB99970-3.1	Todd Shoemaker	Secured Staging Area	07/28/15 12:03	Return to Storage
JB99970-3.1	Secured Staging Area	Ariel Alcalá	07/28/15 12:30	Retrieve from Storage
JB99970-3.1	Ariel Alcalá	Secured Storage	07/28/15 14:41	Return to Storage

5.3  
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# Accutest Internal Chain of Custody

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA  
 Received: 07/24/15

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JB99970-3.1	Secured Storage	Arielle Coccozza	07/29/15 04:42	Retrieve from Storage
JB99970-3.1	Arielle Coccozza	Humarah Bano	07/29/15 07:29	Custody Transfer
JB99970-3.1	Humarah Bano	Secured Storage	07/29/15 10:06	Return to Storage
JB99970-3.1.1	Ariel Alcala	Metals Digestion	07/28/15 14:39	Digestate from JB99970-3.1
JB99970-3.1.2	Humarah Bano	Organics Prep	07/29/15 07:33	Extract from JB99970-3.1
JB99970-3.1.2	Organics Prep	Nida Rizvi	07/29/15 15:56	Extract from JB99970-3.1
JB99970-3.1.2	Nida Rizvi	Extract Storage	07/29/15 15:56	Return to Storage
JB99970-3.1.2	Extract Storage	Ashley Dye	07/29/15 17:56	Retrieve from Storage
JB99970-3.1.2	Ashley Dye	GCMS2P	07/29/15 17:56	Load on Instrument
JB99970-3.1.2	GCMS2P	Samta Patel	08/04/15 14:41	Unload from Instrument
JB99970-3.1.2	Samta Patel	Extract Freezer	08/04/15 14:41	Return to Storage
JB99970-3.2	Secured Storage	Todd Shoemaker	07/28/15 13:38	Retrieve from Storage
JB99970-3.2	Todd Shoemaker	Secured Staging Area	07/28/15 13:39	Return to Storage
JB99970-3.2	Secured Staging Area	Kruti Patel	07/28/15 14:30	Retrieve from Storage
JB99970-3.2	Kruti Patel	Secured Storage	07/28/15 15:49	Return to Storage
JB99970-3.3	Secured Storage	Bernadette Vassilatos	07/28/15 11:19	Retrieve from Storage
JB99970-3.3	Bernadette Vassilatos		07/28/15 11:19	Subcontract
JB99970-3.4	Secured Storage	Thien Nguyen	07/30/15 09:29	Retrieve from Storage
JB99970-3.4	Thien Nguyen	Secured Storage	07/30/15 09:29	Return to Storage
JB99970-11.1	Secured Storage	Payal Rana	08/03/15 12:14	Retrieve from Storage
JB99970-11.1	Payal Rana	GCMSX	08/03/15 12:14	Load on Instrument
JB99970-11.1	GCMSX	Payal Rana	08/04/15 08:43	Unload from Instrument
JB99970-11.1	Payal Rana		08/04/15 08:43	Depleted
JB99970-11.3	Secured Storage	Bernadette Vassilatos	07/28/15 11:19	Retrieve from Storage
JB99970-11.3	Bernadette Vassilatos		07/28/15 11:19	Subcontract

5.3  
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## GC/MS Volatiles

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## QC Data Summaries

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### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (BFB)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

## Method Blank Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE9987-MB1	E227909.D	1	07/30/15	TDN	n/a	n/a	VE9987

The QC reported here applies to the following samples:

Method: SW846 8260C

JB99970-3

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	25	6.7	ug/kg	
107-06-2	1,2-Dichloroethane	ND	50	6.7	ug/kg	
100-41-4	Ethylbenzene	ND	50	8.2	ug/kg	
98-82-8	Isopropylbenzene	ND	100	5.3	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	50	7.7	ug/kg	
91-20-3	Naphthalene	ND	250	9.5	ug/kg	
108-88-3	Toluene	ND	50	10	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	100	10	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	100	9.6	ug/kg	
1330-20-7	Xylene (total)	ND	50	14	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
1868-53-7	Dibromofluoromethane	99%	70-122%
17060-07-0	1,2-Dichloroethane-D4	104%	68-124%
2037-26-5	Toluene-D8	98%	77-125%
460-00-4	4-Bromofluorobenzene	102%	72-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

## Method Blank Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX6744-MB	X156668.D	1	08/03/15	PR	n/a	n/a	VX6744

The QC reported here applies to the following samples:

Method: SW846 8260C

JB99970-1, JB99970-2, JB99970-11

CAS No.	Compound	Result	RL	MDL	Units	Q
71-43-2	Benzene	ND	0.50	0.13	ug/kg	
135-98-8	sec-Butylbenzene	ND	2.0	0.17	ug/kg	
98-06-6	tert-Butylbenzene	ND	2.0	0.21	ug/kg	
110-82-7	Cyclohexane	ND	2.0	0.32	ug/kg	
107-06-2	1,2-Dichloroethane	ND	1.0	0.13	ug/kg	
100-41-4	Ethylbenzene	ND	1.0	0.16	ug/kg	
110-54-3	Hexane	ND	5.0	0.39	ug/kg	
98-82-8	Isopropylbenzene	ND	2.0	0.11	ug/kg	
1634-04-4	Methyl Tert Butyl Ether	ND	1.0	0.15	ug/kg	
91-20-3	Naphthalene	ND	5.0	0.19	ug/kg	
108-88-3	Toluene	ND	1.0	0.21	ug/kg	
95-63-6	1,2,4-Trimethylbenzene	ND	2.0	0.20	ug/kg	
108-67-8	1,3,5-Trimethylbenzene	ND	2.0	0.19	ug/kg	
1330-20-7	Xylene (total)	ND	1.0	0.27	ug/kg	

CAS No.	Surrogate Recoveries	Limits
1868-53-7	Dibromofluoromethane	98% 70-122%
17060-07-0	1,2-Dichloroethane-D4	98% 68-124%
2037-26-5	Toluene-D8	107% 77-125%
460-00-4	4-Bromofluorobenzene	99% 72-130%

CAS No.	Tentatively Identified Compounds	R.T.	Est. Conc.	Units	Q
	Total TIC, Volatile		0	ug/kg	

# Blank Spike Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VE9987-BS	E227910.D	1	07/30/15	TDN	n/a	n/a	VE9987

The QC reported here applies to the following samples:

Method: SW846 8260C

JB99970-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	2500	2570	103	77-122
107-06-2	1,2-Dichloroethane	2500	2940	118	77-140
100-41-4	Ethylbenzene	2500	2610	104	75-121
98-82-8	Isopropylbenzene	2500	2760	110	70-126
1634-04-4	Methyl Tert Butyl Ether	5000	4470	89	77-121
91-20-3	Naphthalene	2500	2110	84	74-126
108-88-3	Toluene	2500	2470	99	75-123
95-63-6	1,2,4-Trimethylbenzene	2500	2910	116	75-126
108-67-8	1,3,5-Trimethylbenzene	2500	2780	111	72-124
1330-20-7	Xylene (total)	7500	7990	107	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	101%	70-122%
17060-07-0	1,2-Dichloroethane-D4	105%	68-124%
2037-26-5	Toluene-D8	100%	77-125%
460-00-4	4-Bromofluorobenzene	103%	72-130%

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
VX6744-BS	X156669.D	1	08/03/15	PR	n/a	n/a	VX6744

The QC reported here applies to the following samples:

Method: SW846 8260C

JB99970-1, JB99970-2, JB99970-11

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
71-43-2	Benzene	50	40.6	81	77-122
135-98-8	sec-Butylbenzene	50	43.4	87	70-125
98-06-6	tert-Butylbenzene	50	43.3	87	70-126
110-82-7	Cyclohexane	50	45.0	90	66-131
107-06-2	1,2-Dichloroethane	50	45.7	91	77-140
100-41-4	Ethylbenzene	50	42.2	84	75-121
110-54-3	Hexane	50	36.4	73	37-137
98-82-8	Isopropylbenzene	50	43.6	87	70-126
1634-04-4	Methyl Tert Butyl Ether	100	85.7	86	77-121
91-20-3	Naphthalene	50	43.7	87	74-126
108-88-3	Toluene	50	47.1	94	75-123
95-63-6	1,2,4-Trimethylbenzene	50	47.2	94	75-126
108-67-8	1,3,5-Trimethylbenzene	50	43.6	87	72-124
1330-20-7	Xylene (total)	150	131	87	76-121

CAS No.	Surrogate Recoveries	BSP	Limits
1868-53-7	Dibromofluoromethane	100%	70-122%
17060-07-0	1,2-Dichloroethane-D4	103%	68-124%
2037-26-5	Toluene-D8	102%	77-125%
460-00-4	4-Bromofluorobenzene	100%	72-130%

\* = Outside of Control Limits.

# Matrix Spike Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB99970-1MS	X156678.D	1	08/03/15	PR	n/a	n/a	VX6744
JB99970-1	X156672.D	1	08/03/15	PR	n/a	n/a	VX6744

The QC reported here applies to the following samples:

Method: SW846 8260C

JB99970-1, JB99970-2, JB99970-11

CAS No.	Compound	JB99970-1 ug/kg	Q	Spike ug/kg	MS ug/kg	MS %	Limits
71-43-2	Benzene	0.50	J	58.6	47.1	80	48-136
135-98-8	sec-Butylbenzene	ND		58.6	51.5	88	23-151
98-06-6	tert-Butylbenzene	ND		58.6	48.9	83	30-149
110-82-7	Cyclohexane	ND		58.6	52.0	89	22-154
107-06-2	1,2-Dichloroethane	ND		58.6	44.2	75	56-140
100-41-4	Ethylbenzene	ND		58.6	49.6	85	34-145
110-54-3	Hexane	ND		58.6	44.8	76	10-157
98-82-8	Isopropylbenzene	ND		58.6	52.0	89	36-145
1634-04-4	Methyl Tert Butyl Ether	ND		58.6	43.6	74	54-129
91-20-3	Naphthalene	ND		58.6	39.6	68	12-160
108-88-3	Toluene	ND		58.6	49.8	85	40-141
95-63-6	1,2,4-Trimethylbenzene	ND		58.6	52.3	89	23-152
108-67-8	1,3,5-Trimethylbenzene	ND		58.6	51.6	88	26-150
1330-20-7	Xylene (total)	ND		176	150	85	34-146

CAS No.	Surrogate Recoveries	MS	JB99970-1	Limits
1868-53-7	Dibromofluoromethane	96%	100%	70-122%
17060-07-0	1,2-Dichloroethane-D4	91%	103%	68-124%
2037-26-5	Toluene-D8	106%	105%	77-125%
460-00-4	4-Bromofluorobenzene	100%	100%	72-130%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB99889-6MS	E227914.D	1	07/30/15	TDN	n/a	n/a	VE9987
JB99889-6MSD	E227915.D	1	07/30/15	TDN	n/a	n/a	VE9987
JB99889-6	E227912.D	1	07/30/15	TDN	n/a	n/a	VE9987

The QC reported here applies to the following samples:

Method: SW846 8260C

JB99970-3

CAS No.	Compound	JB99889-6 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
71-43-2	Benzene	81.8	3540	3200	88	3540	3170	87	1	48-136/30
107-06-2	1,2-Dichloroethane	ND	3540	3720	105	3540	3700	104	1	56-140/24
100-41-4	Ethylbenzene	6730	3540	9610	81	3540	9690	84	1	34-145/29
98-82-8	Isopropylbenzene	1080	3540	4400	94	3540	4350	92	1	36-145/33
1634-04-4	Methyl Tert Butyl Ether	ND	3540	3150	89	3540	3140	89	0	54-129/25
91-20-3	Naphthalene	3890	3540	6730	80	3540	6810	82	1	12-160/33
108-88-3	Toluene	563	3540	3650	87	3540	3610	86	1	40-141/30
95-63-6	1,2,4-Trimethylbenzene	21300	E 3540	24300	85	3540	24500	90	1	23-152/31
108-67-8	1,3,5-Trimethylbenzene	5770	3540	9430	103	3540	9470	104	0	26-150/32
1330-20-7	Xylene (total)	21700	10600	30400	82	10600	30800	86	1	34-146/29

CAS No.	Surrogate Recoveries	MS	MSD	JB99889-6	Limits
1868-53-7	Dibromofluoromethane	100%	101%	101%	70-122%
17060-07-0	1,2-Dichloroethane-D4	109%	106%	108%	68-124%
2037-26-5	Toluene-D8	102%	102%	101%	77-125%
460-00-4	4-Bromofluorobenzene	100%	100%	98%	72-130%

\* = Outside of Control Limits.

# Duplicate Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
JB99970-2DUP	X156680.D	1	08/03/15	PR	n/a	n/a	VX6744
JB99970-2	X156673.D	1	08/03/15	PR	n/a	n/a	VX6744

The QC reported here applies to the following samples:

Method: SW846 8260C

JB99970-1, JB99970-2, JB99970-11

CAS No.	Compound	JB99970-2 ug/kg	DUP Q	ug/kg	Q	RPD	Limits
71-43-2	Benzene	1.5		2.8		60* a	17
135-98-8	sec-Butylbenzene	ND		ND		nc	30
98-06-6	tert-Butylbenzene	ND		ND		nc	30
110-82-7	Cyclohexane	ND		ND		nc	30
107-06-2	1,2-Dichloroethane	ND		ND		nc	30
100-41-4	Ethylbenzene	ND		ND		nc	23
110-54-3	Hexane	ND		ND		nc	30
98-82-8	Isopropylbenzene	ND		ND		nc	22
1634-04-4	Methyl Tert Butyl Ether	ND		ND		nc	30
91-20-3	Naphthalene	ND		ND		nc	30
108-88-3	Toluene	1.9		0.51	J	115* a	22
95-63-6	1,2,4-Trimethylbenzene	ND		ND		nc	30
108-67-8	1,3,5-Trimethylbenzene	ND		ND		nc	30
1330-20-7	Xylene (total)	ND		ND		nc	21

CAS No.	Surrogate Recoveries	DUP	JB99970-2	Limits
1868-53-7	Dibromofluoromethane	100%	100%	70-122%
17060-07-0	1,2-Dichloroethane-D4	103%	103%	68-124%
2037-26-5	Toluene-D8	104%	105%	77-125%
460-00-4	4-Bromofluorobenzene	100%	101%	72-130%

(a) High RPD due to possible sample analyzed from different vials.

\* = Outside of Control Limits.

# Instrument Performance Check (BFB)

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9972-BFB	Injection Date: 07/15/15
Lab File ID: E227496.D	Injection Time: 09:17
Instrument ID: GCMSE	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	13969	19.7	Pass
75	30.0 - 60.0% of mass 95	34989	49.3	Pass
95	Base peak, 100% relative abundance	70928	100.0	Pass
96	5.0 - 9.0% of mass 95	4943	6.97	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) <sup>a</sup>	Pass
174	50.0 - 120.0% of mass 95	58954	83.1	Pass
175	5.0 - 9.0% of mass 174	4442	6.26 (7.53) <sup>a</sup>	Pass
176	95.0 - 101.0% of mass 174	56789	80.1 (96.3) <sup>a</sup>	Pass
177	5.0 - 9.0% of mass 176	3975	5.60 (7.00) <sup>b</sup>	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VE9972-IC9972	E227497.D	07/15/15	09:55	00:38	Initial cal 0.2
VE9972-IC9972	E227498.D	07/15/15	10:26	01:09	Initial cal 0.5
VE9972-IC9972	E227499.D	07/15/15	10:56	01:39	Initial cal 1
VE9972-IC9972	E227501.D	07/15/15	11:57	02:40	Initial cal 4
VE9972-IC9972	E227502.D	07/15/15	12:28	03:11	Initial cal 8
VE9972-IC9972	E227503.D	07/15/15	12:59	03:42	Initial cal 20
VE9972-ICC9972	E227504.D	07/15/15	13:30	04:13	Initial cal 50
VE9972-IC9972	E227505.D	07/15/15	14:01	04:44	Initial cal 100
VE9972-IC9972	E227506.D	07/15/15	14:31	05:14	Initial cal 200
VE9972-IC9972	E227510.D	07/15/15	16:34	07:17	Initial cal 2
VE9972-ICV9972	E227511.D	07/15/15	17:05	07:48	Initial cal verification 50

# Instrument Performance Check (BFB)

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9987-BFB	Injection Date: 07/30/15
Lab File ID: E227905.D	Injection Time: 06:42
Instrument ID: GCMSE	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	18480	22.8	Pass
75	30.0 - 60.0% of mass 95	43256	53.5	Pass
95	Base peak, 100% relative abundance	80885	100.0	Pass
96	5.0 - 9.0% of mass 95	5457	6.75	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) <sup>a</sup>	Pass
174	50.0 - 120.0% of mass 95	67984	84.1	Pass
175	5.0 - 9.0% of mass 174	5483	6.78 (8.07) <sup>a</sup>	Pass
176	95.0 - 101.0% of mass 174	65738	81.3 (96.7) <sup>a</sup>	Pass
177	5.0 - 9.0% of mass 176	4424	5.47 (6.73) <sup>b</sup>	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VE9987-CC9972	E227907.D	07/30/15	07:53	01:11	Continuing cal 20
VE9987-MB1	E227909.D	07/30/15	08:54	02:12	Method Blank
ZZZZZZ	E227909.D	07/30/15	08:54	02:12	(unrelated sample)
VE9987-BS	E227910.D	07/30/15	09:25	02:43	Blank Spike
JB99889-6	E227912.D	07/30/15	10:26	03:44	(used for QC only; not part of job JB99970)
ZZZZZZ	E227913.D	07/30/15	10:57	04:15	(unrelated sample)
JB99889-6MS	E227914.D	07/30/15	11:27	04:45	Matrix Spike
JB99889-6MSD	E227915.D	07/30/15	11:58	05:16	Matrix Spike Duplicate
ZZZZZZ	E227917.D	07/30/15	12:59	06:17	(unrelated sample)
ZZZZZZ	E227918.D	07/30/15	13:29	06:47	(unrelated sample)
ZZZZZZ	E227919.D	07/30/15	14:00	07:18	(unrelated sample)
ZZZZZZ	E227920.D	07/30/15	14:31	07:49	(unrelated sample)
ZZZZZZ	E227921.D	07/30/15	15:01	08:19	(unrelated sample)
JB99970-3	E227923.D	07/30/15	16:02	09:20	MH-618-1-3
ZZZZZZ	E227924.D	07/30/15	16:33	09:51	(unrelated sample)
ZZZZZZ	E227927.D	07/30/15	18:05	11:23	(unrelated sample)

# Instrument Performance Check (BFB)

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6733-BFB	Injection Date: 07/22/15
Lab File ID: X156367.D	Injection Time: 17:33
Instrument ID: GCMSX	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	8712	16.3	Pass
75	30.0 - 60.0% of mass 95	23274	43.7	Pass
95	Base peak, 100% relative abundance	53296	100.0	Pass
96	5.0 - 9.0% of mass 95	3641	6.83	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) <sup>a</sup>	Pass
174	50.0 - 120.0% of mass 95	53581	100.5	Pass
175	5.0 - 9.0% of mass 174	4260	7.99 (7.95) <sup>a</sup>	Pass
176	95.0 - 101.0% of mass 174	51648	96.9 (96.4) <sup>a</sup>	Pass
177	5.0 - 9.0% of mass 176	3494	6.56 (6.77) <sup>b</sup>	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VX6733-IC6733	X156368.D	07/22/15	18:26	00:53	Initial cal 0.2
VX6733-IC6733	X156369.D	07/22/15	18:56	01:23	Initial cal 0.5
VX6733-IC6733	X156370.D	07/22/15	19:27	01:54	Initial cal 1
VX6733-IC6733	X156371.D	07/22/15	19:57	02:24	Initial cal 2
VX6733-IC6733	X156372.D	07/22/15	20:26	02:53	Initial cal 4
VX6733-IC6733	X156373.D	07/22/15	20:56	03:23	Initial cal 8
VX6733-IC6733	X156374.D	07/22/15	21:26	03:53	Initial cal 20
VX6733-ICC6733	X156375.D	07/22/15	21:56	04:23	Initial cal 50
VX6733-IC6733	X156376.D	07/22/15	22:26	04:53	Initial cal 100
VX6733-IC6733	X156377.D	07/22/15	22:55	05:22	Initial cal 200
VX6733-ICV6733	X156380.D	07/23/15	00:25	06:52	Initial cal verification 50

# Instrument Performance Check (BFB)

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6744-BFB	Injection Date: 08/03/15
Lab File ID: X156665.D	Injection Time: 08:42
Instrument ID: GCMSX	

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
50	15.0 - 40.0% of mass 95	10828	17.8	Pass
75	30.0 - 60.0% of mass 95	27770	45.6	Pass
95	Base peak, 100% relative abundance	60834	100.0	Pass
96	5.0 - 9.0% of mass 95	3983	6.55	Pass
173	Less than 2.0% of mass 174	0	0.00 (0.00) <sup>a</sup>	Pass
174	50.0 - 120.0% of mass 95	61306	100.8	Pass
175	5.0 - 9.0% of mass 174	4880	8.02 (7.96) <sup>a</sup>	Pass
176	95.0 - 101.0% of mass 174	59333	97.5 (96.8) <sup>a</sup>	Pass
177	5.0 - 9.0% of mass 176	3879	6.38 (6.54) <sup>b</sup>	Pass

(a) Value is % of mass 174

(b) Value is % of mass 176

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
VX6744-CC6733	X156666.D	08/03/15	09:25	00:43	Continuing cal 20
VX6744-MB	X156668.D	08/03/15	10:36	01:54	Method Blank
VX6744-BS	X156669.D	08/03/15	11:42	03:00	Blank Spike
JB99970-11	X156671.D	08/03/15	12:42	04:00	TB_20150724
JB99970-1	X156672.D	08/03/15	14:04	05:22	MH-617-6-5
JB99970-2	X156673.D	08/03/15	14:34	05:52	MH-619-6-5
ZZZZZZ	X156674.D	08/03/15	15:04	06:22	(unrelated sample)
ZZZZZZ	X156675.D	08/03/15	15:38	06:56	(unrelated sample)
ZZZZZZ	X156676.D	08/03/15	16:08	07:26	(unrelated sample)
ZZZZZZ	X156677.D	08/03/15	16:38	07:56	(unrelated sample)
JB99970-1MS	X156678.D	08/03/15	17:08	08:26	Matrix Spike
JB99970-2DUP	X156680.D	08/03/15	18:08	09:26	Duplicate
ZZZZZZ	X156681.D	08/03/15	18:38	09:56	(unrelated sample)
ZZZZZZ	X156682.D	08/03/15	19:07	10:25	(unrelated sample)
ZZZZZZ	X156683.D	08/03/15	19:37	10:55	(unrelated sample)
ZZZZZZ	X156684.D	08/03/15	20:07	11:25	(unrelated sample)
ZZZZZZ	X156685.D	08/03/15	20:37	11:55	(unrelated sample)

# Volatile Internal Standard Area Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Check Std:	VE9987-CC9972	Injection Date:	07/30/15
Lab File ID:	E227907.D	Injection Time:	07:53
Instrument ID:	GCMSE	Method:	SW846 8260C

	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
Check Std	114140	7.92	243186	10.12	323513	11.05	296065	14.38	175434	16.94
Upper Limit <sup>a</sup>	228280	8.42	486372	10.62	647026	11.55	592130	14.88	350868	17.44
Lower Limit <sup>b</sup>	57070	7.42	121593	9.62	161757	10.55	148033	13.88	87717	16.44

Lab Sample ID	IS 1 AREA	RT	IS 2 AREA	RT	IS 3 AREA	RT	IS 4 AREA	RT	IS 5 AREA	RT
VE9987-MB1	120021	7.94	244627	10.12	332314	11.04	292596	14.38	176914	16.94
ZZZZZZ	120021	7.94	244627	10.12	332314	11.04	292596	14.38	176914	16.94
VE9987-BS	128033	7.93	247357	10.12	342817	11.05	306892	14.38	186063	16.94
JB99889-6	124388	7.96	238188	10.12	331960	11.04	305309	14.38	192120	16.94
ZZZZZZ	133033	7.96	256374	10.12	352871	11.05	321099	14.38	191742	16.94
JB99889-6MS	139596	7.95	260825	10.12	362357	11.04	333904	14.38	206307	16.94
JB99889-6MSD	145368	7.94	272503	10.12	376109	11.05	341887	14.38	212922	16.94
ZZZZZZ	141191	7.96	255237	10.12	355922	11.04	340009	14.38	225864	16.94
ZZZZZZ	147631	7.96	270875	10.12	366469	11.04	330226	14.38	203923	16.94
ZZZZZZ	144307	7.95	266046	10.12	358884	11.05	312346	14.38	191189	16.94
ZZZZZZ	140902	7.95	258037	10.12	347302	11.05	318015	14.38	193910	16.94
ZZZZZZ	141711	7.96	255592	10.12	350407	11.05	328508	14.38	222065	16.94
JB99970-3	150220	7.94	267607	10.12	357096	11.04	319334	14.38	191144	16.94
ZZZZZZ	140268	7.95	262305	10.12	366785	11.05	328231	14.38	211475	16.94
ZZZZZZ	148632	7.95	298232	10.12	490541	11.06	350056	14.38	203084	16.94

- IS 1 = Tert Butyl Alcohol-D9
- IS 2 = Pentafluorobenzene
- IS 3 = 1,4-Difluorobenzene
- IS 4 = Chlorobenzene-D5
- IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.  
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

6.7.1  
6

# Volatile Internal Standard Area Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Check Std:	VX6744-CC6733	Injection Date:	08/03/15
Lab File ID:	X156666.D	Injection Time:	09:25
Instrument ID:	GCMSX	Method:	SW846 8260C

	IS 1		IS 2		IS 3		IS 4		IS 5	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	95488	7.48	249638	10.20	284104	11.37	252133	15.58	144311	18.33
Upper Limit <sup>a</sup>	190976	7.98	499276	10.70	568208	11.87	504266	16.08	288622	18.83
Lower Limit <sup>b</sup>	47744	6.98	124819	9.70	142052	10.87	126067	15.08	72156	17.83

Lab	IS 1		IS 2		IS 3		IS 4		IS 5	
Sample ID	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
VX6744-MB	98985	7.49	263761	10.20	292384	11.38	271178	15.59	163676	18.33
VX6744-BS	103892	7.48	252962	10.20	293137	11.37	257534	15.58	150893	18.33
JB99970-11	120677	7.49	281843	10.21	316946	11.38	286916	15.59	169832	18.34
JB99970-1	115846	7.49	277200	10.20	316008	11.37	280972	15.59	167094	18.34
JB99970-2	103486	7.49	275135	10.21	312733	11.38	285029	15.59	169234	18.34
ZZZZZZ	104171	7.49	264152	10.21	303226	11.38	266404	15.59	157005	18.34
ZZZZZZ	104576	7.49	268729	10.21	310839	11.38	281295	15.59	162296	18.34
ZZZZZZ	113906	7.49	272589	10.21	312120	11.38	272128	15.59	145227	18.34
ZZZZZZ	113871	7.49	275769	10.21	316062	11.38	272804	15.59	162635	18.34
JB99970-1MS	73997	7.50	254014	10.21	287534	11.38	255852	15.59	150629	18.34
JB99970-2DUP	108784	7.49	272075	10.21	305614	11.38	275337	15.59	164739	18.34
ZZZZZZ	114270	7.49	272114	10.21	307267	11.38	278365	15.59	164067	18.34
ZZZZZZ	118677	7.49	279086	10.21	324266	11.38	286479	15.59	164609	18.34
ZZZZZZ	101310	7.49	267604	10.21	295565	11.38	265408	15.59	149621	18.34
ZZZZZZ	113885	7.49	285374	10.20	329986	11.38	296068	15.59	175861	18.34
ZZZZZZ	111162	7.49	271336	10.21	307597	11.38	267503	15.59	157676	18.34

- IS 1 = Tert Butyl Alcohol-D9
- IS 2 = Pentafluorobenzene
- IS 3 = 1,4-Difluorobenzene
- IS 4 = Chlorobenzene-D5
- IS 5 = 1,4-Dichlorobenzene-d4

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

6.7.2

6

# Volatile Surrogate Recovery Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Method: SW846 8260C	Matrix: SO
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3	S4
JB99970-1	X156672.D	100	103	105	100
JB99970-2	X156673.D	100	103	105	101
JB99970-3	E227923.D	96	101	99	103
JB99970-11	X156671.D	98	101	105	100
JB99889-6MS	E227914.D	100	109	102	100
JB99889-6MSD	E227915.D	101	106	102	100
JB99970-1MS	X156678.D	96	91	106	100
JB99970-2DUP	X156680.D	100	103	104	100
VE9987-BS	E227910.D	101	105	100	103
VE9987-MB1	E227909.D	99	104	98	102
VX6744-BS	X156669.D	100	103	102	100
VX6744-MB	X156668.D	98	98	107	99

Surrogate Compounds	Recovery Limits
S1 = Dibromofluoromethane	70-122%
S2 = 1,2-Dichloroethane-D4	68-124%
S3 = Toluene-D8	77-125%
S4 = 4-Bromofluorobenzene	72-130%

# Initial Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9972-ICC9972  
 Lab FileID: E227504.D

## Response Factor Report MSE

Method : C:\msdchem\1\METHODS\ME9972.M (RTE Integrator)  
 Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um  
 Last Update : Wed Jul 15 17:24:08 2015  
 Response via : Initial Calibration

### Calibration Files

4	=E227501.D	2	=E227510.D	20	=E227503.D	50	=E227504.D
100	=E227505.D	1	=E227499.D	200	=E227506.D	0.5	=E227498.D
8	=E227502.D	0.2	=E227497.D		=		=

Compound	4	2	20	50	100	1	200	0.5	8	0.2	Avg	%RSD
1) Tert Butyl Alcohol-d9	-----ISTD-----											
2) 1,4-dioxane	0.084	0.078	0.099	0.103	0.101		0.101		0.095		0.094	10.15
3) tertiary butyl alcohol	1.195	1.063	1.229	1.295	1.238		1.198		1.227		1.206	5.92
4) I pentafluorobenzene	-----ISTD-----											
5) chlorodifluoromethane	0.943	0.823	0.930	0.889	0.901	0.889	0.834	0.941	0.939		0.899	5.04
6) dichlorodifluoromethane	0.991	0.824	1.043	1.023	1.005	0.773	0.960		0.998		0.952	10.37
7) chloromethane	1.030	1.015	1.038	1.006	1.016	1.235	0.964	1.484	1.038		1.092	15.16
8) vinyl chloride	1.037	0.992	1.048	0.976	0.965	0.981	0.914	1.022	1.043		0.998	4.42
9) 1,3-Butadiene											0.000#	-1.00
10) bromomethane	0.750	0.578	0.675	0.585	0.571				0.684		0.641	11.49
11) chloroethane	0.449	0.424	0.465	0.441	0.445	0.435	0.394	0.404	0.468		0.436	5.74
12) vinyl bromide											0.000#	-1.00
13) trichlorofluoromethane	1.016	0.929	1.053	1.008	1.011	0.927	0.974		1.037		0.994	4.75
14) pentane											0.000#	-1.00
15) ethyl ether	0.302	0.265	0.315	0.294	0.292	0.309	0.289		0.277		0.293	5.57
16) 2-chloropropane	1.269	1.163	1.315	1.233	1.203	1.293	1.161	1.264	1.274		1.242	4.47
17) acrolein	0.114	0.112	0.128	0.120	0.122	0.118	0.118	0.110	0.120		0.118	4.51
18) 1,1-dichloroethene	1.005	0.840	1.077	1.018	0.996	0.944	0.960	0.925	1.024	0.925	0.971	6.89
19) acetone	0.036		0.055	0.053	0.053		0.052		0.049		0.050	13.76
20) allyl chloride	0.345	0.294	0.351	0.344	0.328		0.336		0.347		0.335	5.91
21) acetonitrile	0.052	0.064	0.061	0.056	0.055		0.052		0.058		0.057	8.15
22) iodomethane	1.062	0.921	1.179	1.107	1.104	0.974	1.085	1.030	1.128		1.066	7.50
23) iso-butyl alcohol												

6.9.1  
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# Initial Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9972-ICC9972  
 Lab FileID: E227504.D

	0.006	0.004	0.007	0.007	0.007		0.007	0.007		0.007#	18.00	
24)	carbon disulfide											
	2.339	1.986	2.450	2.327	2.284	2.206	2.207	2.172	2.377	2.685	2.303	8.07
25)	methylene chloride											
	0.698	0.614	0.739	0.681	0.675	0.711	0.653	0.670	0.705	0.825	0.697	8.09
26)	1-chloropropane											
	1.768		1.346	1.207	1.149		1.107		1.490		1.345	18.65
27)	methyl acetate											
	0.396	0.405	0.436	0.399	0.395	0.420	0.384		0.403		0.405	4.08
28)	methyl tert butyl ether											
	1.855	1.680	2.041	1.892	1.897	1.840	1.857	2.059	1.964	2.248	1.933	8.00
29)	trans-1,2-dichloroethene											
	0.895	0.815	0.972	0.908	0.891	0.842	0.868	0.855	0.931	0.827	0.881	5.54
30)	di-isopropyl ether											
	1.831	1.640	2.006	1.913	1.914	1.831	1.853	1.862	1.892	2.360	1.910	9.61
31)	ethyl tert-butyl ether											
	1.818	1.590	2.043	1.934	1.958	1.809	1.891	1.760	1.930	1.945	1.868	6.87
32)	2-butanone											
	0.049		0.061	0.057	0.059		0.060		0.055		0.057	7.61
33)	1,1-dichloroethane											
	1.017	0.894	1.119	1.055	1.034	0.966	1.022	0.938	1.057	1.121	1.022	7.16
34)	chloroprene											
	0.727	0.618	0.760	0.740	0.740	0.693	0.738	0.656	0.741		0.712	6.66
35)	acrylonitrile											
	0.205	0.192	0.227	0.215	0.212	0.192	0.206	0.171	0.213		0.204	8.08
36)	vinyl acetate											
	0.067		0.078	0.077	0.076		0.075		0.069		0.074	6.35
37)	ethyl acetate											
	0.060	0.057	0.074	0.071	0.069		0.069		0.065		0.067	9.31
38)	2,2-dichloropropane											
	1.017	0.886	1.041	0.985	0.950	0.985	0.918	1.066	1.003		0.984	5.85
39)	cis-1,2-dichloroethene											
	0.622	0.551	0.648	0.598	0.590	0.692	0.586	0.810	0.618	0.676	0.639	11.55
40)	methyl acrylate											
	0.499	0.491	0.581	0.553	0.549		0.546		0.532		0.536	5.90
41)	propionitrile											
	0.077	0.073	0.083	0.080	0.080	0.068	0.079	0.070	0.079		0.077	6.75
42)	bromochloromethane											
	0.270	0.235	0.294	0.278	0.278	0.232	0.279	0.219	0.277		0.262	10.06
43)	tetrahydrofuran											
	0.058		0.071	0.068	0.068		0.069		0.062		0.066	7.76
44)	chloroform											
	0.938	0.867	0.998	0.933	0.926	0.893	0.926	0.916	0.943	1.053	0.939	5.58
45)	t-butyl formate											
	0.540	0.452	0.585	0.567	0.579	0.476	0.566		0.545		0.539	9.09
46)	Iso-octane											
	1.857	1.535	2.180	2.189	2.207	1.470	2.144		1.923		1.938	15.42
47)	dibromofluoromethane (s)											
	0.446	0.453	0.452	0.455	0.459	0.442	0.456	0.444	0.449	0.447	0.450	1.26
48)	1,2-dichloroethane-d4 (s)											
	0.551	0.552	0.560	0.585	0.565	0.535	0.566	0.539	0.554	0.535	0.554	2.83
49)	freon 113											
	0.397	0.306	0.433	0.417	0.398	0.320	0.386		0.416		0.384	12.07
50)	methacrylonitrile											
	0.188	0.167	0.206	0.199	0.197	0.140	0.200		0.188		0.186	11.74
51)	1,1,1-trichloroethane											
	0.943	0.788	0.987	0.949	0.940	0.860	0.933	0.786	0.956	0.880	0.902	7.86
52)	Cyclohexane											
	0.941	0.713	1.016	0.973	0.951	0.724	0.940		0.943		0.900	12.78
53)	tert-amyl methyl ether											

# Initial Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9972-ICC9972  
 Lab FileID: E227504.D

	1.720	1.616	1.926	1.806	1.846	1.766	1.802	1.878	1.812	1.797	5.05
54) I 1,4-difluorobenzene	-----ISTD-----										
55) tert amyl alcohol										0.000#	-1.00
56) epichlorohydrin											
	0.031	0.029	0.036	0.036	0.036	0.025	0.036	0.025	0.035	0.032	14.76
57) n-butyl alcohol											
	0.010	0.010	0.012	0.012	0.012		0.012		0.011	0.011	10.01
58) tert-amyl ethyl ether										0.000#	-1.00
59) carbon tetrachloride											
	0.565	0.456	0.600	0.572	0.558	0.497	0.561	0.460	0.580	0.539	9.96
60) 1,1-dichloropropene											
	0.485	0.423	0.514	0.493	0.472	0.452	0.478	0.436	0.500	0.472	6.39
61) hexane											
	0.366	0.276	0.396	0.375	0.356	0.277	0.349		0.366	0.345	12.91
62) benzene											
	1.500	1.337	1.578	1.464	1.431	1.423	1.412	1.471	1.513	1.925	1.505
63) heptane											
	0.216	0.172	0.238	0.234	0.220	0.161	0.214		0.215	0.209	13.26
64) isopropyl acetate											
	0.212		0.153	0.137	0.136		0.133		0.169	0.157	19.26
65) 1,2-dichloroethane											
	0.492	0.468	0.531	0.496	0.480	0.458	0.479	0.475	0.511	0.488	4.59
66) ethyl acrylate										0.000#	-1.00
67) trichloroethene											
	0.360	0.332	0.389	0.369	0.363	0.328	0.366	0.328	0.366	0.356	6.00
68) 2-nitropropane										0.000#	-1.00
69) 2-chloroethyl vinyl ether											
	0.184	0.165	0.214	0.211	0.205	0.169	0.203	0.186	0.202	0.193	9.29
70) methylcyclohexane											
	0.637	0.514	0.695	0.674	0.661	0.562	0.648		0.641	0.629	9.63
71) methyl methacrylate											
	0.073	0.065	0.084	0.084	0.083		0.085		0.075	0.078	9.86
72) 1,2-dichloropropane											
	0.371	0.330	0.400	0.380	0.371	0.339	0.369	0.387	0.380	0.370	6.04
73) dibromomethane											
	0.224	0.211	0.250	0.233	0.234	0.211	0.235	0.176	0.235	0.223	9.61
74) bromodichloromethane											
	0.481	0.428	0.532	0.514	0.514	0.473	0.520	0.447	0.503	0.483	0.490
75) cis-1,3-dichloropropene											
	0.561	0.520	0.618	0.595	0.596	0.524	0.604	0.512	0.573	0.544	0.565
76) toluene-d8 (s)											
	1.175	1.160	1.184	1.201	1.219	1.169	1.217	1.165	1.204	1.140	1.183
77) 4-methyl-2-pentanone											
	0.140	0.126	0.163	0.153	0.155	0.122	0.156		0.143	0.145	10.30
78) toluene											
	0.866	0.767	0.909	0.877	0.862	0.836	0.876	0.981	0.878	1.159	0.901
79) 3-methyl-1-butanol											
	0.016	0.016	0.020	0.020			0.020		0.018	0.019	10.97
80) trans-1,3-dichloropropene											
	0.525	0.469	0.570	0.557	0.544	0.476	0.540	0.430	0.525	0.515	9.03
81) ethyl methacrylate											
	0.385	0.367	0.475	0.465	0.452	0.344	0.457	0.319	0.432	0.411	14.11
82) 1,1,2-trichloroethane											
	0.252	0.248	0.282	0.273	0.269	0.221	0.268	0.196	0.270	0.253	11.08
83) 2-hexanone											

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# Initial Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9972-ICC9972  
 Lab FileID: E227504.D

	0.015	0.023	0.025	0.024	0.025	0.021	0.022	16.84				
84) I chlorobenzene-d5	-----ISTD-----											
85) cyclohexanone	0.036	0.034	0.040	0.034	0.027	0.045	0.025	0.032	0.034	19.18		
86) tetrachloroethene	0.410	0.373	0.418	0.408	0.402	0.383	0.412	0.376	0.408	0.399	4.23	
87) 1,3-dichloropropane	0.587	0.533	0.622	0.588	0.567	0.509	0.569	0.566	0.588	0.570	5.78	
88) butyl acetate	0.243	0.209	0.265	0.247	0.240	0.212	0.236	0.261	0.239	8.43		
89) 3,3-dimethyl-1-butanol	0.042	0.041	0.050	0.049	0.054	0.041	0.055	0.039	0.045	0.046	12.93	
90) dibromochloromethane	0.386	0.357	0.422	0.410	0.414	0.368	0.429	0.359	0.401	0.394	7.02	
91) 1,2-dibromoethane	0.342	0.328	0.376	0.360	0.355	0.313	0.360	0.311	0.355	0.344	6.50	
92) n-butyl ether	1.803	1.607	1.980	1.861	1.808	1.638	1.778	1.598	1.856	1.770	7.37	
93) chlorobenzene	1.077	0.972	1.142	1.083	1.059	1.007	1.070	0.987	1.092	1.172	1.066	6.00
94) 1,1,1,2-tetrachloroethane	0.425	0.377	0.477	0.446	0.454	0.430	0.461	0.391	0.441	0.431	0.433	7.03
95) ethylbenzene	1.928	1.731	2.046	1.912	1.857	1.832	1.862	1.827	1.973	2.386	1.935	9.33
96) m,p-xylene	0.714	0.617	0.766	0.711	0.698	0.677	0.710	0.678	0.737	0.814	0.712	7.51
97) o-xylene	0.732	0.652	0.798	0.755	0.751	0.702	0.756	0.709	0.763	0.821	0.744	6.52
98) butyl acrylate									0.000#	-1.00		
99) styrene	1.156	0.987	1.287	1.226	1.195	1.102	1.207	1.030	1.200	1.141	1.153	7.94
100) bromoform	0.273	0.259	0.318	0.303	0.305	0.266	0.318	0.245	0.289	0.286	9.33	
101) I 1,4-dichlorobenzene-d	-----ISTD-----											
102) isopropylbenzene	3.211	2.864	3.544	3.408	3.406	2.955	3.287	3.012	3.363	3.533	3.258	7.40
103) 4-bromofluorobenzene (s)	0.896	0.902	0.892	0.891	0.876	0.891	0.843	0.895	0.901	0.895	0.888	1.95
104) cis-1,4-dichloro-2-butene									0.000#	-1.00		
105) bromobenzene	0.814	0.795	0.893	0.835	0.821	0.793	0.809	0.847	0.859	0.912	0.838	4.82
106) 1,1,2,2-tetrachloroethane	0.914	0.892	1.007	0.952	0.930	0.842	0.892	0.859	0.955	1.030	0.927	6.53
107) trans-1,4-dichloro-2-butene	0.258	0.218	0.298	0.275	0.274	0.212	0.266	0.275	0.260	11.48		
108) 1,2,3-trichloropropane	0.245	0.238	0.257	0.237	0.229	0.157	0.219	0.241	0.228	13.42		
109) n-propylbenzene	3.889	3.410	4.197	3.938	3.844	3.517	3.664	3.788	3.992	4.408	3.865	7.72
110) p-ethyltoluene									0.000#	-1.00		
111) 2-chlorotoluene	0.799	0.730	0.874	0.814	0.803	0.772	0.789	0.784	0.837	0.734	0.794	5.49
112) 4-chlorotoluene	2.406	2.188	2.608	2.467	2.388	2.308	2.342	2.455	2.500	3.235	2.490	11.47
113) 1,3,5-trimethylbenzene												

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# Initial Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9972-ICC9972  
 Lab FileID: E227504.D

114)	tert-butylbenzene	2.776	2.492	3.049	2.927	2.958	2.626	2.873	2.565	2.872	2.787	2.793	6.48
115)	pentachloroethane	0.522	0.453	0.600	0.591	0.613	0.510	0.619	0.499	0.558	0.520	0.548	10.25
116)	1,2,4-trimethylbenzene	0.494	0.457	0.577	0.553	0.578	0.455	0.587	0.453	0.511		0.518	10.93
117)	sec-butylbenzene	2.785	2.428	3.100	2.927	2.885	2.586	2.816	2.660	2.884	2.926	2.800	6.95
118)	1,3-dichlorobenzene	3.765	3.263	4.102	4.019	4.028	3.398	3.963	3.419	3.899	3.933	3.779	8.07
119)	p-isopropyltoluene	1.724	1.567	1.850	1.728	1.709	1.594	1.721	1.722	1.732	1.929	1.728	6.08
120)	1,4-dichlorobenzene	3.146	2.797	3.490	3.354	3.367	2.911	3.314	3.100	3.256	3.404	3.214	6.97
121)	benzyl chloride	1.738	1.674	1.869	1.748	1.729	1.707	1.741	1.744	1.776	2.231	1.796	8.97
122)	p-diethylbenzene	1.738	1.614	1.975	1.859	1.844	1.848	1.788	2.052	1.819		1.838	6.89
123)	1,2-dichlorobenzene											0.000#	-1.00
124)	n-butylbenzene	1.735	1.583	1.876	1.764	1.750	1.667	1.742	1.700	1.731	1.792	1.734	4.43
125)	1,2,4,5-tetramethylbenzene	1.701	1.491	1.864	1.787	1.755	1.518	1.713	1.489	1.740	1.922	1.698	8.99
126)	1,2-dibromo-3-chloropropane											0.000#	-1.00
127)	1,3,5-trichlorobenzene	0.205	0.187	0.235	0.227	0.234	0.203	0.237		0.213		0.218	8.45
128)	1,2,4-trichlorobenzene	1.501	1.394	1.671	1.581	1.602	1.389	1.612	1.389	1.563	1.848	1.555	9.33
129)	hexachlorobutadiene	1.302	1.238	1.468	1.420	1.467	1.224	1.451	1.190	1.336		1.344	8.28
130)	naphthalene	0.669	0.643	0.718	0.707	0.711	0.559	0.713	0.623	0.692		0.671	7.97
131)	1,2,3-trichlorobenzene	2.877	2.993	3.311	3.206	3.311	2.837	3.227	2.979	2.980		3.080	6.00
132)	hexachloroethane	1.201	1.260	1.345	1.290	1.335	1.154	1.306	1.258	1.220		1.263	5.02
		0.528	0.477	0.596	0.611	0.645	0.504	0.667	0.599	0.559		0.576	11.13

(#) = Out of Range ### Number of calibration levels exceeded format ###

ME9972.M

Wed Jul 15 17:32:29 2015 RPT1

# Initial Calibration Verification

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9972-ICV9972  
 Lab FileID: E227511.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E227511.D Vial: 16  
 Acq On : 15 Jul 2015 5:05 pm Operator: ThienN  
 Sample : icv9972-50 Inst : MSE  
 Misc : MS87801,VE9972,5,,100,5,1 Multiplr: 1.00  
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\ME9972.M (RTE Integrator)  
 Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um  
 Last Update : Wed Jul 15 17:24:08 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1	Tert Butyl Alcohol-d9	1.000	1.000	0.0	99	0.02	7.96
2 M	1,4-dioxane	0.094	0.104	-10.6	100	0.00	11.80
3 M	tertiary butyl alcohol	1.206	1.333	-10.5	102	-0.01	8.06
4 I	pentafluorobenzene	1.000	1.000	0.0	97	0.00	10.12
5 M	chlorodifluoromethane	0.899	0.759	15.6	83	0.00	4.39
6 M	dichlorodifluoromethane	0.952	0.976	-2.5	92	0.00	4.37
7 M	chloromethane	1.092	0.998	8.6	96	0.00	4.74
8 M	vinyl chloride	0.998	0.964	3.4	96	0.00	5.04
9	1,3-Butadiene			-----NA-----			
10 M	bromomethane	0.641	0.583	9.0	97	0.00	5.72
11 M	chloroethane	0.436	0.441	-1.1	97	0.00	5.89
12 M	vinyl bromide			-----NA-----			
13 M	trichlorofluoromethane	0.994	0.987	0.7	95	0.00	6.37
14 M	pentane			-----NA-----			
15 M	ethyl ether	0.293	0.296	-1.0	97	0.00	6.78
16 m	2-chloropropane	1.242	1.383	-11.4	109	0.00	7.01
17 M	acrolein	0.118	0.125	-5.9	101	0.00	7.09
18 M	1,1-dichloroethene	0.971	0.995	-2.5	95	0.00	7.23
19 M	acetone	0.050	0.053	-6.0	98	0.00	7.32
20 M	allyl chloride	0.335	0.380	-13.4	107	0.00	7.78
21 M	acetonitrile	0.057	0.059	-3.5	103	0.00	7.78
22 M	iodomethane	1.066	1.096	-2.8	96	0.00	7.55
23 M	iso-butyl alcohol	0.007	0.007#	0.0	98	0.00	10.42
24 M	carbon disulfide	2.303	2.344	-1.8	98	0.00	7.66
25 M	methylene chloride	0.697	0.686	1.6	98	0.00	7.98
26 m	1-chloropropane	1.345	1.251	7.0	100	0.00	8.00
27 M	methyl acetate	0.405	0.398	1.7	97	0.00	7.74
28 M	methyl tert butyl ether	1.933	1.835	5.1	94	0.00	8.27
29 M	trans-1,2-dichloroethene	0.881	0.898	-1.9	96	0.00	8.34
30 M	di-isopropyl ether	1.910	1.962	-2.7	99	0.00	8.84
31 M	ethyl tert-butyl ether	1.868	1.968	-5.4	99	0.00	9.31
32 M	2-butanone	0.057	0.062	-8.8	104	0.00	9.61
33 M	1,1-dichloroethane	1.022	1.086	-6.3	100	0.00	8.91
34 M	chloroprene	0.712	0.717	-0.7	94	0.00	9.00
35 M	acrylonitrile	0.204	0.219	-7.4	99	0.00	8.31
36 M	vinyl acetate	0.074	0.087	-17.6	109	0.00	8.87
37 M	ethyl acetate	0.067	0.074	-10.4	101	0.00	9.60
38 M	2,2-dichloropropane	0.984	0.994	-1.0	98	0.00	9.64
39 M	cis-1,2-dichloroethene	0.639	0.604	5.5	98	0.00	9.64
40 m	methyl acrylate	0.536	0.557	-3.9	98	0.00	9.69
41 M	propionitrile	0.077	0.079	-2.6	96	0.00	9.73

# Initial Calibration Verification

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9972-ICV9972  
 Lab FileID: E227511.D

42 M	bromochloromethane	0.262	0.279	-6.5	97	0.00	9.96
43 M	tetrahydrofuran	0.066	0.071	-7.6	101	0.00	9.99
44 M	chloroform	0.939	0.956	-1.8	99	0.00	10.01
45 m	t-butyl formate	0.539	0.615	-14.1	105	0.00	10.03
46 M	Iso-octane	1.938	2.130	-9.9	94	0.00	10.64
47 S	dibromofluoromethane (s)	0.450	0.458	-1.8	97	0.00	10.21
48 S	1,2-dichloroethane-d4 (s)	0.554	0.591	-6.7	98	0.00	10.63
49 M	freon 113	0.384	0.432	-12.5	100	0.00	7.18
50 M	methacrylonitrile	0.186	0.202	-8.6	98	0.00	9.90
51 M	1,1,1-trichloroethane	0.902	0.957	-6.1	98	0.00	10.26
52	Cyclohexane	0.900	0.956	-6.2	95	0.00	10.31
53 M	tert-amyl methyl ether	1.797	1.826	-1.6	98	0.00	10.69
54 I	1,4-difluorobenzene	1.000	1.000	0.0	98	0.00	11.05
55 M	tert amyl alcohol			-----NA-----			
56 M	epichlorohydrin	0.032	0.039	-21.9	109	0.00	12.35
57 M	n-butyl alcohol	0.011	0.013	-18.2	104	0.00	11.18
58 M	tert-amyl ethyl ether			-----NA-----			
59 M	carbon tetrachloride	0.539	0.559	-3.7	96	0.00	10.45
60 M	1,1-dichloropropene	0.472	0.507	-7.4	101	0.00	10.42
61 M	hexane	0.345	0.365	-5.8	96	0.00	8.59
62 M	benzene	1.505	1.488	1.1	100	0.00	10.69
63 M	heptane	0.209	0.229	-9.6	96	0.00	10.80
64 M	isopropyl acetate	0.157	0.139	11.5	100	0.00	10.58
65 M	1,2-dichloroethane	0.488	0.498	-2.0	99	0.00	10.72
66	ethyl acrylate			-----NA-----			
67 M	trichloroethene	0.356	0.378	-6.2	101	0.00	11.40
68 M	2-nitropropane			-----NA-----			
69 M	2-chloroethyl vinyl ether	0.193	0.219	-13.5	102	0.00	12.20
70 M	methylcyclohexane	0.629	0.656	-4.3	96	0.00	11.60
71 M	methyl methacrylate	0.078	0.084	-7.7	98	0.00	11.65
72 M	1,2-dichloropropane	0.370	0.385	-4.1	100	0.00	11.68
73 M	dibromomethane	0.223	0.235	-5.4	99	0.00	11.86
74 M	bromodichloromethane	0.490	0.513	-4.7	98	0.00	11.98
75 M	cis-1,3-dichloropropene	0.565	0.588	-4.1	97	0.00	12.44
76 S	toluene-d8 (s)	1.183	1.171	1.0	96	0.00	12.73
77 M	4-methyl-2-pentanone	0.145	0.152	-4.8	98	0.00	12.52
78 M	toluene	0.901	0.849	5.8	95	0.00	12.81
79 M	3-methyl-1-butanol	0.019	0.021	-10.5	104	0.00	12.54
80 M	trans-1,3-dichloropropene	0.515	0.506	1.7	89	0.00	13.03
81 M	ethyl methacrylate	0.411	0.437	-6.3	92	0.00	12.99
82 M	1,1,2-trichloroethane	0.253	0.261	-3.2	94	0.00	13.27
83 M	2-hexanone	0.022	0.023	-4.5	94	0.00	13.43
84 I	chlorobenzene-d5	1.000	1.000	0.0	93	0.00	14.38
85 M	cyclohexanone	0.034	0.029	14.7	78	0.00	15.64
86 M	tetrachloroethene	0.399	0.413	-3.5	94	0.00	13.44
87 M	1,3-dichloropropane	0.570	0.579	-1.6	92	0.00	13.47
88 M	butyl acetate	0.239	0.263	-10.0	99	0.00	13.49
89 m	3,3-dimethyl-1-butanol	0.046	0.054	-17.4	103	0.00	13.61
90 M	dibromochloromethane	0.394	0.413	-4.8	94	0.00	13.76
91 M	1,2-dibromoethane	0.344	0.358	-4.1	93	0.00	13.93
92 M	n-butyl ether	1.770	1.879	-6.2	94	0.00	14.26
93 M	chlorobenzene	1.066	1.085	-1.8	93	0.00	14.41
94 M	1,1,1,2-tetrachloroethane	0.433	0.456	-5.3	95	0.00	14.48
95 M	ethylbenzene	1.935	1.922	0.7	94	0.00	14.45
96 M	m,p-xylene	0.712	0.716	-0.6	94	0.00	14.56
97 M	o-xylene	0.744	0.772	-3.8	95	0.00	15.04
98 M	butyl acrylate			-----NA-----			
99 M	styrene	1.153	1.246	-8.1	95	0.00	15.05

6.9.2  
6

# Initial Calibration Verification

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9972-ICV9972  
 Lab FileID: E227511.D

100	M	bromoform	0.286	0.311	-8.7	96	0.00	15.38
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	99	0.00	16.95
102	M	isopropylbenzene	3.258	3.278	-0.6	95	0.00	15.40
103	S	4-bromofluorobenzene (s)	0.888	0.852	4.1	94	0.00	15.65
104		cis-1,4-dichloro-2-butene			-----NA-----			
105	M	bromobenzene	0.838	0.816	2.6	96	0.00	15.88
106	M	1,1,2,2-tetrachloroethane	0.927	0.894	3.6	92	0.00	15.77
107	M	trans-1,4-dichloro-2-bute	0.260	0.273	-5.0	98	0.00	15.81
108	M	1,2,3-trichloropropane	0.228	0.224	1.8	93	0.00	15.86
109	M	n-propylbenzene	3.865	4.059	-5.0	102	0.00	15.86
110	M	p-ethyltoluene			-----NA-----			
111	M	2-chlorotoluene	0.794	0.788	0.8	95	0.00	16.04
112	M	4-chlorotoluene	2.490	2.405	3.4	96	0.00	16.15
113	M	1,3,5-trimethylbenzene	2.793	2.825	-1.1	95	0.00	16.02
114	M	tert-butylbenzene	0.548	0.581	-6.0	97	0.00	16.41
115	M	pentachloroethane	0.518	0.548	-5.8	98	0.00	16.53
116	M	1,2,4-trimethylbenzene	2.800	2.976	-6.3	100	0.00	16.46
117	M	sec-butylbenzene	3.779	3.899	-3.2	96	0.00	16.65
118	M	1,3-dichlorobenzene	1.728	1.710	1.0	97	0.00	16.88
119	M	p-isopropyltoluene	3.214	3.335	-3.8	98	0.00	16.77
120	M	1,4-dichlorobenzene	1.796	1.748	2.7	99	0.00	16.98
121	M	benzyl chloride	1.838	1.938	-5.4	103	0.00	17.11
122	M	p-diethylbenzene			-----NA-----			
123	M	1,2-dichlorobenzene	1.734	1.776	-2.4	99	0.00	17.42
124	M	n-butylbenzene	1.698	1.831	-7.8	101	0.00	17.23
125	M	1,2,4,5-tetramethylbenzen			-----NA-----			
126	M	1,2-dibromo-3-chloropropa	0.218	0.229	-5.0	100	0.00	18.28
127	m	1,3,5-trichlorobenzene	1.555	1.615	-3.9	101	0.00	18.46
128	M	1,2,4-trichlorobenzene	1.344	1.420	-5.7	98	0.00	19.20
129	M	hexachlorobutadiene	0.671	0.686	-2.2	96	0.00	19.30
130	M	naphthalene	3.080	3.127	-1.5	96	0.00	19.52
131	M	1,2,3-trichlorobenzene	1.263	1.287	-1.9	98	0.00	19.81
132	M	hexachloroethane	0.576	0.619	-7.5	100	0.00	17.69

(#) = Out of Range  
 E227504.D ME9972.M

SPCC's out = 0 CCC's out = 0  
 Wed Jul 15 17:32:10 2015 RPT1

# Continuing Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9987-CC9972  
 Lab FileID: E227907.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E227907.D Vial: 3  
 Acq On : 30 Jul 2015 7:53 am Operator: ThienN  
 Sample : CC9972-20 Inst : MSE  
 Misc : MS88475,VE9987,5,,100,5,1 Multiplr: 1.00  
 MS Integration Params: RTEINT.P

Method : C:\msdchem\1\METHODS\ME9972.M (RTE Integrator)  
 Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um  
 Last Update : Wed Jul 15 17:24:08 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.010 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 Tert Butyl Alcohol-d9	1.000	1.000	0.0	83	-0.02	7.92
2 M 1,4-dioxane	0.094	0.084	10.6	71	0.00	11.79
3 M tertiary butyl alcohol	1.206	1.302	-8.0	88	-0.03	8.04
4 I pentafluorobenzene	1.000	1.000	0.0	115	0.00	10.12
5 M chlorodifluoromethane	0.899	1.020	-13.5	126	0.00	4.39
6 M dichlorodifluoromethane	0.952	1.026	-7.8	113	0.00	4.37
7 M chloromethane	1.092	1.115	-2.1	124	0.00	4.75
8 M vinyl chloride	0.998	1.041	-4.3	114	0.00	5.03
9 1,3-Butadiene			-----NA-----			
10 M bromomethane	0.641	0.598	6.7	102	0.00	5.72
11 M chloroethane	0.436	0.465	-6.7	115	0.00	5.90
12 M vinyl bromide			-----NA-----			
13 M trichlorofluoromethane	0.994	1.087	-9.4	119	0.01	6.39
14 M pentane			-----NA-----			
15 M ethyl ether	0.293	0.298	-1.7	109	0.00	6.78
16 m 2-chloropropane	1.242	1.370	-10.3	120	0.00	7.00
17 M acrolein	0.118	0.112	5.1	100	-0.01	7.08
18 M 1,1-dichloroethene	0.971	1.039	-7.0	111	0.00	7.23
19 M acetone	0.050	0.045	10.0	94	0.00	7.31
20 M allyl chloride	0.335	0.328	2.1	108	-0.01	7.76
21 M acetonitrile	0.057	0.057	0.0	107	0.00	7.77
22 M iodomethane	1.066	1.085	-1.8	106	-0.01	7.53
23 M iso-butyl alcohol	0.007	0.007#	0.0	111	0.00	10.42
24 M carbon disulfide	2.303	2.230	3.2	105	0.00	7.66
25 M methylene chloride	0.697	0.659	5.5	103	-0.01	7.97
26 m 1-chloropropane	1.345	1.356	-0.8	116	0.00	7.99
27 M methyl acetate	0.405	0.409	-1.0	108	0.00	7.75
28 M methyl tert butyl ether	1.933	1.906	1.4	107	0.00	8.26
29 M trans-1,2-dichloroethene	0.881	0.946	-7.4	112	0.00	8.33
30 M di-isopropyl ether	1.910	2.120	-11.0	122	0.00	8.84
31 M ethyl tert-butyl ether	1.868	1.966	-5.2	111	0.00	9.31
32 M 2-butanone	0.057	0.056	1.8	105	0.00	9.60
33 M 1,1-dichloroethane	1.022	1.102	-7.8	113	0.00	8.91
34 M chloroprene	0.712	0.847	-19.0	128	0.00	9.00
35 M acrylonitrile	0.204	0.208	-2.0	106	0.00	8.31
36 M vinyl acetate	0.074	0.081	-9.5	118	0.00	8.87
37 M ethyl acetate	0.067	0.068	-1.5	104	0.00	9.60
38 M 2,2-dichloropropane	0.984	1.112	-13.0	123	0.00	9.64
39 M cis-1,2-dichloroethene	0.639	0.597	6.6	106	0.00	9.64
40 m methyl acrylate	0.536	0.526	1.9	104	0.00	9.68
41 M propionitrile	0.077	0.073	5.2	101	0.00	9.73

6.9.3  
6

# Continuing Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9987-CC9972  
 Lab FileID: E227907.D

42 M	bromochloromethane	0.262	0.287	-9.5	112	0.00	9.96
43 M	tetrahydrofuran	0.066	0.062	6.1	100	0.00	9.99
44 M	chloroform	0.939	1.014	-8.0	117	0.00	10.00
45 m	t-butyl formate	0.539	0.572	-6.1	113	0.00	10.02
46 M	Iso-octane	1.938	2.069	-6.8	109	0.00	10.64
47 S	dibromofluoromethane (s)	0.450	0.458	-1.8	117	0.00	10.21
48 S	1,2-dichloroethane-d4 (s)	0.554	0.579	-4.5	119	0.00	10.63
49 M	freon 113	0.384	0.433	-12.8	115	0.00	7.19
50 M	methacrylonitrile	0.186	0.181	2.7	101	0.00	9.90
51 M	1,1,1-trichloroethane	0.902	0.980	-8.6	114	0.00	10.25
52	Cyclohexane	0.900	0.938	-4.2	106	0.00	10.31
53 M	tert-amyl methyl ether	1.797	1.760	2.1	105	0.00	10.69
54 I	1,4-difluorobenzene	1.000	1.000	0.0	109	0.00	11.05
55 M	tert amyl alcohol			-----NA-----			
56 M	epichlorohydrin	0.032	0.033	-3.1	101	0.00	12.35
57 M	n-butyl alcohol	0.011	0.008#	27.3#	79	0.00	11.17
58 M	tert-amyl ethyl ether			-----NA-----			
59 M	carbon tetrachloride	0.539	0.647	-20.0#	118	0.00	10.44
60 M	1,1-dichloropropene	0.472	0.560	-18.6	119	0.00	10.42
61 M	hexane	0.345	0.465	-34.8#	128	0.00	8.59
62 M	benzene	1.505	1.599	-6.2	111	0.00	10.69
63 M	heptane	0.209	0.265	-26.8#	122	0.00	10.80
64 M	isopropyl acetate	0.157	0.151	3.8	108	0.00	10.58
65 M	1,2-dichloroethane	0.488	0.598	-22.5#	123	0.00	10.72
66	ethyl acrylate			-----NA-----			
67 M	trichloroethene	0.356	0.395	-11.0	111	0.00	11.39
68 M	2-nitropropane			-----NA-----			
69 M	2-chloroethyl vinyl ether	0.193	0.213	-10.4	109	0.00	12.19
70 M	methylcyclohexane	0.629	0.702	-11.6	111	0.00	11.60
71 M	methyl methacrylate	0.078	0.078	0.0	102	0.00	11.64
72 M	1,2-dichloropropane	0.370	0.411	-11.1	112	0.00	11.68
73 M	dibromomethane	0.223	0.248	-11.2	109	0.00	11.85
74 M	bromodichloromethane	0.490	0.541	-10.4	111	0.00	11.97
75 M	cis-1,3-dichloropropene	0.565	0.649	-14.9	115	0.00	12.43
76 S	toluene-d8 (s)	1.183	1.195	-1.0	110	0.00	12.73
77 M	4-methyl-2-pentanone	0.145	0.151	-4.1	101	0.00	12.52
78 M	toluene	0.901	0.923	-2.4	111	0.00	12.81
79 M	3-methyl-1-butanol	0.019	0.015	21.1#	84	0.00	12.54
80 M	trans-1,3-dichloropropene	0.515	0.595	-15.5	114	0.00	13.03
81 M	ethyl methacrylate	0.411	0.444	-8.0	102	0.00	12.98
82 M	1,1,2-trichloroethane	0.253	0.273	-7.9	106	0.00	13.27
83 M	2-hexanone	0.022	0.025	-13.6	115	0.00	13.43
84 I	chlorobenzene-d5	1.000	1.000	0.0	110	0.00	14.38
85 M	cyclohexanone	0.034	0.048	-41.2#	132	0.00	15.64
86 M	tetrachloroethene	0.399	0.435	-9.0	114	0.00	13.43
87 M	1,3-dichloropropane	0.570	0.614	-7.7	109	0.00	13.47
88 M	butyl acetate	0.239	0.259	-8.4	108	0.00	13.48
89 m	3,3-dimethyl-1-butanol	0.046	0.041	10.9	90	0.00	13.61
90 M	dibromochloromethane	0.394	0.424	-7.6	111	0.00	13.76
91 M	1,2-dibromoethane	0.344	0.353	-2.6	103	0.00	13.93
92 M	n-butyl ether	1.770	2.039	-15.2	113	0.00	14.25
93 M	chlorobenzene	1.066	1.148	-7.7	111	0.00	14.41
94 M	1,1,1,2-tetrachloroethane	0.433	0.471	-8.8	109	0.00	14.47
95 M	ethylbenzene	1.935	2.060	-6.5	111	0.00	14.45
96 M	m,p-xylene	0.712	0.758	-6.5	109	0.00	14.56
97 M	o-xylene	0.744	0.792	-6.5	109	0.00	15.03
98 M	butyl acrylate			-----NA-----			
99 M	styrene	1.153	1.248	-8.2	107	0.00	15.04

# Continuing Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VE9987-CC9972  
 Lab FileID: E227907.D

100	M	bromoform	0.286	0.294	-2.8	102	0.00	15.37
101	I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	106	0.00	16.94
102	M	isopropylbenzene	3.258	3.721	-14.2	112	0.00	15.40
103	S	4-bromofluorobenzene (s)	0.888	0.921	-3.7	110	0.00	15.65
104		cis-1,4-dichloro-2-butene			-----NA-----			
105	M	bromobenzene	0.838	0.908	-8.4	108	0.00	15.88
106	M	1,1,2,2-tetrachloroethane	0.927	0.923	0.4	98	0.00	15.77
107	M	trans-1,4-dichloro-2-bute	0.260	0.298	-14.6	106	0.00	15.81
108	M	1,2,3-trichloropropane	0.228	0.241	-5.7	100	0.00	15.87
109	M	n-propylbenzene	3.865	4.267	-10.4	108	0.00	15.86
110	M	p-ethyltoluene			-----NA-----			
111	M	2-chlorotoluene	0.794	0.879	-10.7	107	0.00	16.04
112	M	4-chlorotoluene	2.490	2.659	-6.8	109	0.00	16.15
113	M	1,3,5-trimethylbenzene	2.793	3.206	-14.8	112	0.00	16.02
114	M	tert-butylbenzene	0.548	0.633	-15.5	112	0.00	16.40
115	M	pentachloroethane	0.518	0.598	-15.4	110	0.00	16.53
116	M	1,2,4-trimethylbenzene	2.800	3.207	-14.5	110	0.00	16.46
117	M	sec-butylbenzene	3.779	4.298	-13.7	111	0.00	16.64
118	M	1,3-dichlorobenzene	1.728	1.855	-7.3	107	0.00	16.88
119	M	p-isopropyltoluene	3.214	3.673	-14.3	112	0.00	16.77
120	M	1,4-dichlorobenzene	1.796	1.879	-4.6	107	0.00	16.97
121		benzyl chloride	1.838	1.945	-5.8	105	0.00	17.11
122	M	p-diethylbenzene			-----NA-----			
123	M	1,2-dichlorobenzene	1.734	1.835	-5.8	104	0.00	17.41
124	M	n-butylbenzene	1.698	1.876	-10.5	107	0.00	17.23
125	M	1,2,4,5-tetramethylbenzen			-----NA-----			
126	M	1,2-dibromo-3-chloropropa	0.218	0.187	14.2	85	0.00	18.28
127	m	1,3,5-trichlorobenzene	1.555	1.638	-5.3	104	0.00	18.45
128	M	1,2,4-trichlorobenzene	1.344	1.384	-3.0	100	0.00	19.20
129	M	hexachlorobutadiene	0.671	0.693	-3.3	103	0.00	19.30
130	M	naphthalene	3.080	2.681	13.0	86	0.00	19.52
131	M	1,2,3-trichlorobenzene	1.263	1.168	7.5	92	0.00	19.80
132	M	hexachloroethane	0.576	0.636	-10.4	114	0.00	17.69

(#) = Out of Range  
 E227503.D ME9972.M

SPCC's out = 0 CCC's out = 0  
 Thu Jul 30 12:53:41 2015 RPT1

# Initial Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6733-ICC6733  
 Lab FileID: X156375.D

## Response Factor Report ACC-VOA-M

Method : C:\MSDCHEM\1\METHODS\MX6733.M (RTE Integrator)  
 Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
 Last Update : Thu Jul 23 09:18:59 2015  
 Response via : Initial Calibration

### Calibration Files

1	=x156370.D	2	=x156371.D	100	=x156376.D	50	=x156375.D
20	=x156374.D	200	=x156377.D	8	=x156373.D	4	=x156372.D
0.5	=x156369.D	0.2	=x156368.D	=	=	=	=

Compound	1	2	100	50	20	200	8	4	0.5	0.2	Avg	%RSD
1) I tert butyl alcohol-d9 -----ISTD-----												
2) tertiary butyl alcohol	1.337	1.406	1.153	1.124	1.189	1.135	1.276	1.192			1.226	8.38
3) 1,4-dioxane			0.089	0.083	0.088	0.093	0.089	0.081			0.087	4.85
4) I pentafluorobenzene -----ISTD-----												
5) chlorotrifluoroethene											0.000	-1.00
6) chlorodifluoromethane	0.653	0.703	0.743	0.746	0.748	0.712	0.708	0.724			0.717	4.41
7) dichlorodifluoromethane	0.854	0.909	0.902	0.918	0.885	0.897	0.919	0.752	0.888		0.880	5.91
8) chloromethane	1.010	0.829	0.720	0.679	0.681	0.735	0.697	0.667	0.906		0.769	15.62
9) vinyl chloride	0.966	0.764	0.763	0.722	0.706	0.778	0.741	0.661	0.796		0.767	11.11
10) bromomethane	0.557	0.412	0.403	0.420	0.382	0.451	0.478				0.443	13.40
11) chloroethane	0.402	0.298	0.267	0.265	0.277	0.250	0.293	0.269	0.265		0.287	15.82
12) vinyl bromide											0.000	-1.00
13) trichlorofluoromethane	0.802	0.715	0.698	0.696	0.696	0.696	0.736	0.629			0.709	6.83
14) 1,3-butadiene											0.000	-1.00
15) pentane											0.000	-1.00
16) ethyl ether	0.169	0.163	0.166	0.162	0.168	0.163	0.186	0.165			0.168	4.65
17) acrolein	0.050	0.052	0.039	0.045	0.046	0.048	0.049	0.049			0.047	8.12
18) 1,1-dichloroethene	0.494	0.583	0.529	0.534	0.540	0.508	0.602	0.559	0.578		0.547	6.58
19) acetone			0.024	0.030	0.022	0.022	0.032				0.026	17.41
20) allyl chloride	0.167	0.153	0.188	0.188	0.192	0.185	0.214	0.206			0.187	10.49
21) acetonitrile			0.026	0.026	0.025	0.025	0.028				0.026	4.37
22) iodomethane	0.807	0.788	0.779	0.780	0.764	0.881	0.816	0.896			0.811	5.77
23) iso-butyl alcohol												

# Initial Calibration Summary

Job Number: JB99970  
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 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6733-ICC6733  
 Lab FileID: X156375.D

	0.020	0.020	0.014	0.014	0.016	0.014	0.019	0.018		0.017	16.22	
24)	carbon disulfide											
	1.642	1.543	1.375	1.394	1.411	1.324	1.608	1.542	1.972	1.534	12.89	
25)	methylene chloride											
	0.548	0.476	0.384	0.388	0.388	0.370	0.457	0.438		0.431	14.14	
26)	methyl acetate											
	0.274	0.182	0.185	0.191	0.178	0.210	0.219			0.206	16.56	
27)	methyl tert butyl ether											
	1.320	1.279	1.127	1.121	1.142	1.098	1.302	1.178	1.564	1.176	1.231	11.52
28)	trans-1,2-dichloroethene											
	0.548	0.581	0.498	0.506	0.525	0.478	0.576	0.552	0.692	0.551	11.53	
29)	di-isopropyl ether											
	1.242	1.386	1.318	1.301	1.314	1.284	1.356	1.344	1.346	1.681	1.357	8.89
30)	2-butanone											
	0.030	0.030	0.030	0.028	0.034					0.030	7.15	
31)	1,1-dichloroethane											
	0.640	0.683	0.628	0.635	0.667	0.600	0.735	0.655	0.873	0.680	12.04	
32)	chloroprene											
	0.427	0.469	0.462	0.458	0.476	0.446	0.451	0.488	0.448	0.458	3.92	
33)	acrylonitrile											
	0.079	0.094	0.086	0.085	0.091	0.084	0.102	0.088		0.089	7.99	
34)	vinyl acetate											
	0.043	0.042	0.039	0.042	0.037	0.031				0.039	11.87	
35)	ethyl tert-butyl ether											
	1.203	1.259	1.281	1.236	1.249	1.265	1.287	1.230	1.142	1.335	1.248	4.16
36)	ethyl acetate											
	0.035	0.035	0.035	0.034	0.032	0.024				0.033	13.12	
37)	2,2-dichloropropane											
	0.760	0.732	0.641	0.650	0.659	0.617	0.729	0.697	0.991	0.720	15.63	
38)	cis-1,2-dichloroethene											
	0.489	0.474	0.391	0.391	0.404	0.377	0.442	0.432	0.635	0.448	17.84	
39)	methyl acrylate											
										0.000	-1.00	
40)	propionitrile											
	0.026	0.033	0.034	0.033	0.035	0.034	0.039	0.033		0.034	10.19	
41)	tert-Butyl Formate											
	0.269	0.294	0.295	0.290	0.291	0.295	0.310	0.300		0.293	3.93	
42)	bromochloromethane											
	0.181	0.211	0.188	0.186	0.189	0.186	0.206	0.190		0.192	5.49	
43)	tetrahydrofuran											
	0.127	0.091	0.092	0.103	0.090	0.120	0.115			0.105	14.53	
44)	chloroform											
	0.684	0.658	0.584	0.579	0.604	0.567	0.656	0.628	0.813	0.751	0.652	12.16
45)	dibromofluoromethane (s)											
	0.366	0.362	0.360	0.358	0.366	0.357	0.368	0.366	0.362	0.359	0.363	1.09
46)	1,2-dichloroethane-d4 (s)											
	0.296	0.295	0.293	0.291	0.296	0.293	0.302	0.300	0.298	0.293	0.296	1.14
47)	freon 113											
	0.309	0.355	0.362	0.369	0.345	0.339	0.348			0.347	5.63	
48)	methacrylonitrile											
	0.087	0.093	0.089	0.097	0.093	0.101	0.095			0.094	4.90	
49)	1,1,1-trichloroethane											
	0.658	0.629	0.605	0.605	0.617	0.596	0.664	0.640	0.766	0.642	8.10	
50)	cyclohexane											
	0.694	0.686	0.624	0.637	0.644	0.624	0.692	0.660	0.656	0.657	4.22	
51)	tert amyl alcohol											
										0.000	-1.00	
52)	iso-octane											
	1.305	1.278	1.559	1.498	1.455	1.582	1.279	1.344	1.235	1.393	9.48	

# Initial Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6733-ICC6733  
 Lab FileID: X156375.D

53)	I	1,4-difluorobenzene	-----ISTD-----											
54)		epichlorohydrin	0.023	0.018	0.018	0.019	0.018	0.020	0.019		0.019	9.14		
55)		n-butyl alcohol	0.008	0.009	0.007	0.007	0.008	0.008	0.008	0.007	0.012	0.008	17.13	
56)		carbon tetrachloride	0.483	0.497	0.459	0.461	0.475	0.439	0.518	0.492	0.483	0.478	4.92	
57)		1,1-dichloropropene	0.401	0.396	0.365	0.365	0.382	0.355	0.400	0.381	0.431	0.386	6.08	
58)		hexane	0.479	0.424	0.371	0.376	0.394	0.357	0.365	0.407		0.397	10.16	
59)		benzene	1.338	1.310	1.095	1.100	1.158	1.055	1.256	1.234	1.681	1.474	1.270	15.22
60)		tert-amyl methyl ether	0.978	1.031	0.930	0.927	0.970	0.910	1.011	1.038	1.099	1.452	1.035	15.26
61)		heptane	0.199	0.209	0.206	0.208	0.222	0.200	0.190	0.196	0.168		0.200	7.49
62)		isopropyl acetate	0.656	0.672	0.614	0.595	0.613	0.609	0.636	0.626	0.692		0.635	5.11
63)		1,2-dichloroethane	0.305	0.342	0.283	0.288	0.309	0.274	0.343	0.324	0.355		0.314	9.21
64)		trichloroethene	0.335	0.322	0.309	0.305	0.318	0.308	0.339	0.318	0.417		0.330	10.52
65)		ethyl acrylate											0.000	-1.00
66)		tert amyl ethyl ether											0.000	-1.00
67)		2-nitropropane	0.070	0.059	0.058	0.064	0.058	0.071	0.065				0.063	8.71
68)		2-chloroethyl vinyl ether	0.068	0.073	0.072	0.070	0.070	0.074	0.072	0.069	0.069		0.071	2.88
69)		methyl methacrylate	0.139	0.130	0.129	0.137	0.128	0.153	0.126				0.134	6.98
70)		1,2-dichloropropane	0.319	0.319	0.289	0.286	0.293	0.284	0.327	0.296	0.314		0.303	5.49
71)		dibromomethane	0.154	0.176	0.149	0.145	0.155	0.146	0.164	0.156	0.172		0.158	7.03
72)		methylcyclohexane	0.532	0.529	0.596	0.602	0.597	0.583	0.547	0.568	0.486		0.560	6.99
73)		bromodichloromethane	0.385	0.386	0.367	0.357	0.365	0.361	0.396	0.387	0.437		0.383	6.45
74)		cis-1,3-dichloropropene	0.466	0.463	0.437	0.440	0.450	0.435	0.483	0.460	0.477		0.457	3.78
75)		toluene-d8 (s)	1.113	1.113	1.120	1.132	1.125	1.111	1.130	1.112	1.100	1.099	1.116	1.00
76)		4-methyl-2-pentanone	0.088	0.085	0.085	0.090	0.086	0.093	0.074				0.086	7.19
77)		toluene	0.810	0.756	0.682	0.677	0.707	0.670	0.751	0.733	0.847	0.899	0.753	10.22
78)		3-methyl-1-butanol	0.015	0.016	0.012	0.012	0.012	0.012	0.013	0.012			0.013	12.83
79)		trans-1,3-dichloropropene	0.427	0.407	0.367	0.365	0.375	0.359	0.402	0.367	0.395		0.385	6.10
80)		ethyl methacrylate	0.312	0.288	0.277	0.275	0.280	0.275	0.303	0.278	0.284		0.286	4.60
81)		1,1,2-trichloroethane	0.187	0.185	0.177	0.179	0.179	0.175	0.195	0.180	0.178		0.182	3.47
82)		2-hexanone	0.070	0.072	0.075	0.078	0.071	0.081	0.064				0.073	7.90

6.9.4  
6

# Initial Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6733-ICC6733  
 Lab FileID: X156375.D

83)	I	chlorobenzene-d5	-----ISTD-----									
84)		3,3-Dimethyl-1-butanol	0.043	0.047	0.040	0.037	0.039	0.041	0.039	0.037	0.040	8.13
85)		tetrachloroethene	0.378	0.334	0.317	0.309	0.315	0.317	0.330	0.333	0.416	10.45
86)		1,3-dichloropropane	0.465	0.460	0.411	0.398	0.422	0.404	0.452	0.427	0.431	5.64
87)		butyl acetate	0.208	0.232	0.177	0.164	0.179	0.180	0.176	0.181	0.187	11.65
88)		dibromochloromethane	0.360	0.369	0.344	0.329	0.343	0.346	0.366	0.334	0.359	4.07
89)		1,2-dibromoethane	0.306	0.288	0.258	0.249	0.261	0.260	0.277	0.265	0.311	8.07
90)		n-butyl ether	1.856	1.738	1.613	1.562	1.607	1.595	1.697	1.632	1.670	5.44
91)		chlorobenzene	1.133	1.067	0.947	0.909	0.936	0.926	1.006	0.972	1.050	8.39
92)		1,1,1,2-tetrachloroethane	0.431	0.468	0.430	0.410	0.432	0.424	0.448	0.439	0.459	4.07
93)		ethylbenzene	1.909	1.694	1.552	1.515	1.587	1.507	1.683	1.622	1.865	11.01
94)		m,p-xylene	0.743	0.662	0.612	0.597	0.622	0.596	0.659	0.650	0.725	9.67
95)		o-xylene	0.746	0.713	0.683	0.663	0.671	0.680	0.713	0.665	0.759	5.15
96)		styrene	1.172	1.098	1.027	1.002	1.036	0.999	1.102	1.015	1.189	9.25
97)		bromoform	0.244	0.252	0.238	0.229	0.235	0.247	0.244	0.222	0.228	4.26
98)	I	1,4-dichlorobenzene-d	-----ISTD-----									
99)		isopropylbenzene	3.430	3.180	3.159	3.067	3.071	3.053	3.131	2.949	3.295	4.31
100)		cis-1,4-dichloro-2-butene									0.000	-1.00
101)		Cyclohexanone	0.147	0.131	0.106	0.114	0.104	0.089	0.105	0.109	0.113	15.88
102)		4-bromofluorobenzene (s)	0.816	0.817	0.818	0.814	0.806	0.794	0.802	0.797	0.809	1.09
103)		bromobenzene	0.949	0.827	0.775	0.756	0.764	0.752	0.807	0.780	0.954	9.68
104)		1,1,2,2-tetrachloroethane	0.776	0.712	0.642	0.621	0.657	0.628	0.673	0.618	0.899	13.41
105)		trans-1,4-dichloro-2-butene	0.169	0.161	0.154	0.149	0.165	0.147	0.170	0.154	0.159	5.54
106)		1,2,3-trichloropropane	0.176	0.157	0.145	0.147	0.152	0.138	0.162	0.137	0.152	8.62
107)		n-propylbenzene	3.926	3.579	3.183	3.157	3.232	3.027	3.390	3.198	3.787	9.16
108)		4-ethyltoluene									0.000	-1.00
109)		2-chlorotoluene	0.845	0.775	0.755	0.740	0.744	0.732	0.781	0.713	0.916	8.24
110)		4-chlorotoluene	2.668	2.203	1.938	1.909	1.972	1.897	2.071	2.069	2.691	14.43
111)		1,3,5-trimethylbenzene	2.946	2.729	2.597	2.552	2.578	2.534	2.621	2.511	2.738	5.22
112)		tert-butylbenzene	2.634	2.382	2.513	2.379	2.373	2.546	2.351	2.244	2.402	4.86
113)		pentachloroethane										

6.9.4  
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# Initial Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6733-ICC6733  
 Lab FileID: X156375.D

114)	0.699 0.594 0.644 0.610 0.619 0.647 0.603 0.543 0.685	0.627	7.63
	1,2,4-trimethylbenzene		
115)	2.827 2.620 2.517 2.488 2.514 2.449 2.628 2.417 2.890	2.595	6.38
	1,2,3-trimethylbenzene		
116)	sec-butylbenzene	0.000	-1.00
	4.253 3.796 3.734 3.618 3.632 3.689 3.693 3.442 4.001	3.762	6.31
117)	1,3-dichlorobenzene		
	1.853 1.719 1.525 1.478 1.539 1.487 1.633 1.564 1.856	1.628	9.11
118)	p-isopropyltoluene		
	3.782 3.266 3.106 3.025 3.023 3.082 3.163 2.990 3.375	3.201	7.84
119)	1,4-dichlorobenzene		
	2.002 1.682 1.496 1.461 1.543 1.470 1.600 1.542 2.174	1.663	15.26
120)	1,2-dichlorobenzene		
	1.892 1.711 1.554 1.502 1.545 1.536 1.651 1.554 2.075	1.669	11.68
121)	benzyl chloride		
	1.708 1.457 1.209 1.153 1.269 1.178 1.341 1.330	1.331	13.69
122)	1,4-diethylbenzene		
123)	n-butylbenzene	0.000	-1.00
	1.620 1.574 1.485 1.456 1.499 1.479 1.545 1.487 1.729	1.542	5.69
124)	1,2,4,5-tetramethylbenzene		
125)	1,2-dibromo-3-chloropropane	0.000	-1.00
	0.230 0.218 0.187 0.181 0.187 0.192 0.192 0.189	0.197	8.81
126)	1,3,5-trichlorobenzene		
	1.841 1.777 1.695 1.620 1.658 1.751 1.720 1.642 2.143	1.761	9.05
127)	hexachlorobutadiene		
	0.931 0.922 0.897 0.889 0.897 0.946 0.901 0.867 1.148	0.933	8.98
128)	naphthalene		
	4.349 3.870 3.387 3.273 3.407 3.433 3.524 3.414	3.582	9.95
129)	1,2,4-trichlorobenzene		
	1.923 1.848 1.702 1.626 1.657 1.748 1.740 1.673 2.296	1.801	11.55
130)	1,2,3-trichlorobenzene		
	2.115 2.002 1.806 1.773 1.784 1.840 1.853 1.791 2.696	1.962	15.19
131)	hexachloroethane		
	0.532 0.537 0.659 0.592 0.579 0.698 0.524 0.503 0.519	0.572	11.83

(#) = Out of Range ### Number of calibration levels exceeded format ###

MX6733.M

Thu Jul 23 09:22:07 2015

GCMSX

# Initial Calibration Verification

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6733-ICV6733  
 Lab FileID: X156380.D

## Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\X156380.D Vial: 14  
 Acq On : 23 Jul 2015 12:25 am Operator: payalr  
 Sample : icv6733-50 Inst : ACC-VOA-M  
 Misc : MS88309,VX6733,5.0,,,,,1 Multiplr: 1.00  
 MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MX6733.M (RTE Integrator)  
 Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
 Last Update : Thu Jul 23 09:18:59 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	tert butyl alcohol-d9	1.000	1.000	0.0	102	0.00	7.50
2	tertiary butyl alcohol	1.226	1.079	12.0	98	0.00	7.63
3	1,4-dioxane	0.087	0.086	1.1	106	0.00	12.35
4 I	pentafluorobenzene	1.000	1.000	0.0	105	0.00	10.20
5 m	chlorotrifluoroethene			NA			
6	chlorodifluoromethane	0.717	0.648	9.6	91	0.00	3.82
7	dichlorodifluoromethane	0.880	0.707	19.7	81	0.00	3.82
8	chloromethane	0.769	0.623	19.0	96	0.00	4.13
9	vinyl chloride	0.767	0.667	13.0	97	0.00	4.40
10	bromomethane	0.443	0.395	10.8	103	0.01	5.09
11	chloroethane	0.287	0.291	-1.4	115	0.00	5.27
12	vinyl bromide			NA			
13	trichlorofluoromethane	0.709	0.609	14.1	92	0.00	5.75
14	1,3-butadiene			NA			
15	pentane			NA			
16	ethyl ether	0.168	0.159	5.4	103	0.00	6.21
17	acrolein	0.047	0.044	6.4	101	0.00	6.53
18	1,1-dichloroethene	0.547	0.501	8.4	98	0.00	6.67
19	acetone	0.026	0.029	-11.5	102	0.00	6.79
20	allyl chloride	0.187	0.200	-7.0	112	0.00	7.29
21	acetonitrile	0.026	0.025	3.8	103	0.00	7.30
22	iodomethane	0.811	0.751	7.4	101	0.00	7.00
23	iso-butyl alcohol	0.017	0.014	17.6	105	0.00	10.61
24	carbon disulfide	1.534	1.373	10.5	103	0.00	7.12
25	methylene chloride	0.431	0.374	13.2	101	0.00	7.52
26	methyl acetate	0.206	0.170	17.5	96	0.00	7.28
27	methyl tert butyl ether	1.231	1.053	14.5	98	0.00	7.86
28	trans-1,2-dichloroethene	0.551	0.472	14.3	98	0.00	7.93
29	di-isopropyl ether	1.357	1.279	5.7	103	0.00	8.57
30	2-butanone	0.030	0.029	3.3	101	0.00	9.54
31	1,1-dichloroethane	0.680	0.619	9.0	102	0.00	8.63
32	chloroprene	0.458	0.453	1.1	104	0.00	8.74
33	acrylonitrile	0.089	0.083	6.7	103	0.00	7.94
34	vinyl acetate	0.039	0.042	-7.7	107	0.00	8.62
35	ethyl tert-butyl ether	1.248	1.213	2.8	103	0.00	9.14
36	ethyl acetate	0.033	0.031	6.1	93	0.00	9.53
37	2,2-dichloropropane	0.720	0.621	13.7	100	0.00	9.53
38	cis-1,2-dichloroethene	0.448	0.374	16.5	100	0.00	9.54
39	methyl acrylate			NA			
40	propionitrile	0.034	0.031	8.8	97	0.00	9.69
41	tert-Butyl Formate	0.293	0.297	-1.4	107	-0.01	10.03

# Initial Calibration Verification

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6733-ICV6733  
 Lab FileID: X156380.D

42	bromochloromethane	0.192	0.176	8.3	99	0.00	9.94
43	tetrahydrofuran	0.105	0.087	17.1	99	0.00	9.98
44	chloroform	0.652	0.564	13.5	102	0.00	10.02
45 S	dibromofluoromethane (s)	0.363	0.359	1.1	105	0.00	10.27
46 S	1,2-dichloroethane-d4 (s)	0.296	0.287	3.0	103	0.00	10.81
47	freon 113	0.347	0.359	-3.5	104	0.00	6.62
48	methacrylonitrile	0.094	0.087	7.4	102	0.00	9.89
49	1,1,1-trichloroethane	0.642	0.584	9.0	101	0.00	10.30
50	cyclohexane	0.657	0.605	7.9	100	0.00	10.36
51 m	tert amyl alcohol			-----NA-----			
52 m	iso-octane	1.393	1.398	-0.4	98	0.00	10.83
53 I	1,4-difluorobenzene	1.000	1.000	0.0	104	0.00	11.38
54	epichlorohydrin	0.019	0.019	0.0	110	0.00	13.10
55	n-butyl alcohol	0.008	0.007	12.5	102	0.00	11.60
56	carbon tetrachloride	0.478	0.449	6.1	101	0.00	10.55
57	1,1-dichloropropene	0.386	0.359	7.0	102	0.00	10.53
58	hexane	0.397	0.309	22.2	85	0.00	8.25
59	benzene	1.270	1.065	16.1	101	0.00	10.87
60	tert-amyl methyl ether	1.035	0.935	9.7	105	0.00	10.91
61	heptane	0.200	0.208	-4.0	104	0.00	11.06
62	isopropyl acetate	0.635	0.611	3.8	107	0.00	10.81
63	1,2-dichloroethane	0.314	0.279	11.1	101	0.00	10.93
64	trichloroethene	0.330	0.293	11.2	100	0.00	11.81
65 m	ethyl acrylate			-----NA-----			
66 m	tert amyl ethyl ether			-----NA-----			
67	2-nitropropane	0.063	0.057	9.5	103	0.00	12.92
68	2-chloroethyl vinyl ether	0.071	0.080	-12.7	119	0.00	12.92
69	methyl methacrylate	0.134	0.126	6.0	102	0.00	12.20
70	1,2-dichloropropane	0.303	0.279	7.9	102	0.00	12.18
71	dibromomethane	0.158	0.140	11.4	100	0.00	12.40
72	methylcyclohexane	0.560	0.577	-3.0	100	0.00	12.06
73	bromodichloromethane	0.383	0.347	9.4	101	0.00	12.59
74	cis-1,3-dichloropropene	0.457	0.424	7.2	100	0.00	13.20
75 S	toluene-d8 (s)	1.116	1.150	-3.0	106	0.00	13.56
76	4-methyl-2-pentanone	0.086	0.082	4.7	100	0.00	13.34
77	toluene	0.753	0.651	13.5	100	0.00	13.66
78	3-methyl-1-butanol	0.013	0.011	15.4	101	0.00	13.40
79	trans-1,3-dichloropropene	0.385	0.345	10.4	98	0.00	13.97
80	ethyl methacrylate	0.286	0.264	7.7	100	0.00	13.96
81	1,1,2-trichloroethane	0.182	0.172	5.5	100	0.00	14.25
82	2-hexanone	0.073	0.074	-1.4	102	0.00	14.50
83 I	chlorobenzene-d5	1.000	1.000	0.0	107	0.00	15.59
84	3,3-Dimethyl-1-butanol	0.040	0.032	20.0	93	0.00	14.75
85	tetrachloroethene	0.339	0.296	12.7	102	0.00	14.43
86	1,3-dichloropropane	0.430	0.380	11.6	102	0.00	14.50
87	butyl acetate	0.187	0.147	21.4	96	0.00	14.75
88	dibromochloromethane	0.350	0.314	10.3	102	0.00	14.84
89	1,2-dibromoethane	0.275	0.238	13.5	102	0.00	15.03
90 m	n-butyl ether	1.663	1.452	12.7	99	0.00	15.53
91	chlorobenzene	1.008	0.882	12.5	104	0.00	15.63
92	1,1,1,2-tetrachloroethane	0.438	0.380	13.2	99	0.00	15.72
93	ethylbenzene	1.700	1.434	15.6	101	0.00	15.70
94	m,p-xylene	0.665	0.569	14.4	102	0.00	15.84
95	o-xylene	0.695	0.638	8.2	103	0.00	16.39
96	styrene	1.095	0.968	11.6	103	0.00	16.41
97	bromoform	0.238	0.220	7.6	103	0.00	16.75
98 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	109	0.00	18.33

# Initial Calibration Verification

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6733-ICV6733  
 Lab FileID: X156380.D

99	isopropylbenzene	3.154	2.789	11.6	100	0.00	16.82
100	cis-1,4-dichloro-2-butene			-----NA-----			
101	Cyclohexanone	0.113	0.104	8.0	100	0.00	17.05
102 S	4-bromofluorobenzene (s)	0.809	0.809	0.0	109	0.00	17.07
103	bromobenzene	0.818	0.719	12.1	104	0.00	17.28
104	1,1,2,2-tetrachloroethane	0.692	0.568	17.9	100	0.00	17.23
105	trans-1,4-dichloro-2-bute	0.159	0.140	11.9	103	0.00	17.28
106	1,2,3-trichloropropane	0.152	0.133	12.5	99	0.00	17.30
107	n-propylbenzene	3.387	3.077	9.2	107	0.00	17.30
108 m	4-ethyltoluene			-----NA-----			
109	2-chlorotoluene	0.778	0.691	11.2	102	0.00	17.46
110	4-chlorotoluene	2.157	1.799	16.6	103	0.00	17.58
111	1,3,5-trimethylbenzene	2.645	2.356	10.9	101	0.00	17.47
112	tert-butylbenzene	2.425	2.154	11.2	99	0.00	17.85
113	pentachloroethane	0.627	0.548	12.6	98	0.00	17.95
114	1,2,4-trimethylbenzene	2.595	2.412	7.1	106	0.00	17.90
115 m	1,2,3-trimethylbenzene			-----NA-----			
116	sec-butylbenzene	3.762	3.294	12.4	100	0.00	18.08
117	1,3-dichlorobenzene	1.628	1.411	13.3	105	0.00	18.28
118	p-isopropyltoluene	3.201	2.845	11.1	103	0.00	18.20
119	1,4-dichlorobenzene	1.663	1.401	15.8	105	0.00	18.36
120	1,2-dichlorobenzene	1.669	1.469	12.0	107	0.00	18.75
121	benzyl chloride	1.331	1.144	14.0	109	0.00	18.49
122 m	1,4-diethylbenzene			-----NA-----			
123	n-butylbenzene	1.542	1.384	10.2	104	0.00	18.62
124 m	1,2,4,5-tetramethylbenzen			-----NA-----			
125	1,2-dibromo-3-chloropropa	0.197	0.173	12.2	105	0.00	19.49
126	1,3,5-trichlorobenzene	1.761	1.547	12.2	105	0.00	19.63
127	hexachlorobutadiene	0.933	0.807	13.5	99	0.00	20.30
128	naphthalene	3.582	3.033	15.3	101	0.00	20.47
129	1,2,4-trichlorobenzene	1.801	1.531	15.0	103	0.00	20.21
130 m	1,2,3-trichlorobenzene	1.962	1.616	17.6	100	0.00	20.69
131	hexachloroethane	0.572	0.542	5.2	100	0.00	18.98

(#) = Out of Range  
 x156375.D MX6733.M

SPCC's out = 0 CCC's out = 0  
 Thu Jul 23 09:22:42 2015 GCMSX

# Continuing Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6744-CC6733  
 Lab FileID: X156666.D

## Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\X156666.D Vial: 2  
 Acq On : 3 Aug 2015 9:25 am Operator: payalr  
 Sample : cc6733-20 Inst : ACC-VOA-M  
 Misc : MS88976,VX6744,5.0,,,,,1 Multiplr: 1.00  
 MS Integration Params: RTEINT.P

Method : C:\MSDCHEM\1\METHODS\MX6733.M (RTE Integrator)  
 Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
 Last Update : Thu Jul 23 09:18:59 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	tert butyl alcohol-d9	1.000	1.000	0.0	123	-0.02	7.48
2	tertiary butyl alcohol	1.226	1.264	-3.1	131	-0.02	7.61
3	1,4-dioxane	0.087	0.098	-12.6	137	0.00	12.34
4 I	pentafluorobenzene	1.000	1.000	0.0	122	0.00	10.20
5 m	chlorotrifluoroethene			NA			
6	chlorodifluoromethane	0.717	0.800	-11.6	130	-0.01	3.81
7	dichlorodifluoromethane	0.880	1.085	-23.3#	149	-0.03	3.79
8	chloromethane	0.769	0.688	10.5	123	-0.01	4.12
9	vinyl chloride	0.767	0.730	4.8	126	-0.01	4.39
10	bromomethane	0.443	0.399	9.9	116	0.00	5.08
11	chloroethane	0.287	0.280	2.4	123	0.00	5.27
12	vinyl bromide			NA			
13	trichlorofluoromethane	0.709	0.747	-5.4	131	-0.02	5.73
14	1,3-butadiene			NA			
15	pentane			NA			
16	ethyl ether	0.168	0.159	5.4	115	0.00	6.20
17	acrolein	0.047	0.039	17.0	104	0.00	6.53
18	1,1-dichloroethene	0.547	0.550	-0.5	124	0.00	6.66
19	acetone	0.026	0.026	0.0	141	0.00	6.79
20	allyl chloride	0.187	0.179	4.3	114	0.00	7.28
21	acetonitrile	0.026	0.027	-3.8	128	0.00	7.30
22	iodomethane	0.811	0.735	9.4	115	0.00	6.98
23	iso-butyl alcohol	0.017	0.015	11.8	116	0.00	10.61
24	carbon disulfide	1.534	1.415	7.8	122	0.00	7.10
25	methylene chloride	0.431	0.387	10.2	121	0.00	7.51
26	methyl acetate	0.206	0.185	10.2	118	0.00	7.28
27	methyl tert butyl ether	1.231	1.049	14.8	112	0.00	7.86
28	trans-1,2-dichloroethene	0.551	0.507	8.0	118	-0.01	7.92
29	di-isopropyl ether	1.357	1.285	5.3	119	-0.01	8.56
30	2-butanone	0.030	0.027	10.0	109	0.00	9.54
31	1,1-dichloroethane	0.680	0.617	9.3	113	0.00	8.62
32	chloroprene	0.458	0.460	-0.4	118	0.00	8.73
33	acrylonitrile	0.089	0.088	1.1	118	0.00	7.94
34	vinyl acetate	0.039	0.040	-2.6	126	0.00	8.61
35	ethyl tert-butyl ether	1.248	1.202	3.7	117	0.00	9.13
36	ethyl acetate	0.033	0.034	-3.0	119	0.00	9.53
37	2,2-dichloropropane	0.720	0.666	7.5	123	-0.01	9.52
38	cis-1,2-dichloroethene	0.448	0.367	18.1	111	0.00	9.54
39	methyl acrylate			NA			
40	propionitrile	0.034	0.034	0.0	118	0.00	9.68
41	tert-Butyl Formate	0.293	0.303	-3.4	127	-0.01	10.03

# Continuing Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6744-CC6733  
 Lab FileID: X156666.D

42	bromochloromethane	0.192	0.171	10.9	111	0.00	9.93
43	tetrahydrofuran	0.105	0.093	11.4	111	0.00	9.97
44	chloroform	0.652	0.560	14.1	113	0.00	10.01
45 S	dibromofluoromethane (s)	0.363	0.351	3.3	117	0.00	10.27
46 S	1,2-dichloroethane-d4 (s)	0.296	0.289	2.4	119	0.00	10.80
47	freon 113	0.347	0.349	-0.6	115	-0.02	6.61
48	methacrylonitrile	0.094	0.088	6.4	111	0.00	9.89
49	1,1,1-trichloroethane	0.642	0.595	7.3	117	0.00	10.30
50	cyclohexane	0.657	0.629	4.3	119	-0.01	10.35
51 m	tert amyl alcohol			-----NA-----			
52 m	iso-octane	1.393	1.254	10.0	105	-0.01	10.82
53 I	1,4-difluorobenzene	1.000	1.000	0.0	121	0.00	11.37
54	epichlorohydrin	0.019	0.021	-10.5	135	0.00	13.09
55	n-butyl alcohol	0.008	0.007	12.5	115	0.00	11.59
56	carbon tetrachloride	0.478	0.472	1.3	120	0.00	10.54
57	1,1-dichloropropene	0.386	0.352	8.8	111	0.00	10.52
58	hexane	0.397	0.341	14.1	104	-0.01	8.23
59	benzene	1.270	1.060	16.5	110	0.00	10.87
60	tert-amyl methyl ether	1.035	0.914	11.7	114	0.00	10.90
61	heptane	0.200	0.197	1.5	107	0.00	11.06
62	isopropyl acetate	0.635	0.599	5.7	118	0.00	10.80
63	1,2-dichloroethane	0.314	0.276	12.1	108	0.00	10.92
64	trichloroethene	0.330	0.301	8.8	114	0.00	11.81
65 m	ethyl acrylate			-----NA-----			
66 m	tert amyl ethyl ether			-----NA-----			
67	2-nitropropane	0.063	0.070	-11.1	133	0.00	12.92
68	2-chloroethyl vinyl ether	0.071	0.090	-26.8#	155	0.00	12.92
69	methyl methacrylate	0.134	0.130	3.0	115	0.00	12.20
70	1,2-dichloropropane	0.303	0.277	8.6	114	0.00	12.18
71	dibromomethane	0.158	0.143	9.5	111	0.00	12.40
72	methylcyclohexane	0.560	0.554	1.1	112	0.00	12.05
73	bromodichloromethane	0.383	0.347	9.4	115	0.00	12.58
74	cis-1,3-dichloropropene	0.457	0.436	4.6	117	0.00	13.19
75 S	toluene-d8 (s)	1.116	1.181	-5.8	127	0.00	13.56
76	4-methyl-2-pentanone	0.086	0.086	0.0	115	0.00	13.34
77	toluene	0.753	0.837	-11.2	143	0.00	13.65
78	3-methyl-1-butanol	0.013	0.012	7.7	120	0.00	13.40
79	trans-1,3-dichloropropene	0.385	0.389	-1.0	125	0.00	13.97
80	ethyl methacrylate	0.286	0.282	1.4	121	0.00	13.96
81	1,1,2-trichloroethane	0.182	0.186	-2.2	125	0.00	14.25
82	2-hexanone	0.073	0.080	-9.6	124	0.00	14.50
83 I	chlorobenzene-d5	1.000	1.000	0.0	127	0.00	15.58
84	3,3-Dimethyl-1-butanol	0.040	0.036	10.0	118	0.00	14.74
85	tetrachloroethene	0.339	0.305	10.0	123	0.00	14.42
86	1,3-dichloropropane	0.430	0.403	6.3	122	0.00	14.50
87	butyl acetate	0.187	0.166	11.2	118	0.00	14.75
88	dibromochloromethane	0.350	0.325	7.1	121	0.00	14.84
89	1,2-dibromoethane	0.275	0.245	10.9	120	0.00	15.03
90 m	n-butyl ether	1.663	1.583	4.8	126	0.00	15.53
91	chlorobenzene	1.008	0.897	11.0	122	0.00	15.63
92	1,1,1,2-tetrachloroethane	0.438	0.372	15.1	110	0.00	15.72
93	ethylbenzene	1.700	1.558	8.4	125	0.00	15.70
94	m,p-xylene	0.665	0.615	7.5	126	0.00	15.84
95	o-xylene	0.695	0.647	6.9	123	0.00	16.39
96	styrene	1.095	0.998	8.9	123	0.00	16.41
97	bromoform	0.238	0.233	2.1	126	0.00	16.75
98 I	1,4-dichlorobenzene-d4	1.000	1.000	0.0	124	0.00	18.33

6.9.6  
6

# Continuing Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: VX6744-CC6733  
 Lab FileID: X156666.D

99	isopropylbenzene	3.154	3.059	3.0	124	0.00	16.81
100	cis-1,4-dichloro-2-butene			-----NA-----			
101	Cyclohexanone	0.113	0.116	-2.7	139	0.00	17.05
102 S	4-bromofluorobenzene (s)	0.809	0.818	-1.1	126	0.00	17.07
103	bromobenzene	0.818	0.751	8.2	122	0.00	17.29
104	1,1,2,2-tetrachloroethane	0.692	0.634	8.4	120	0.00	17.23
105	trans-1,4-dichloro-2-bute	0.159	0.167	-5.0	126	0.00	17.28
106	1,2,3-trichloropropane	0.152	0.154	-1.3	126	0.00	17.30
107	n-propylbenzene	3.387	3.334	1.6	128	0.00	17.30
108 m	4-ethyltoluene			-----NA-----			
109	2-chlorotoluene	0.778	0.742	4.6	124	0.00	17.46
110	4-chlorotoluene	2.157	1.996	7.5	126	0.00	17.58
111	1,3,5-trimethylbenzene	2.645	2.538	4.0	123	0.00	17.47
112	tert-butylbenzene	2.425	2.208	8.9	116	0.00	17.85
113	pentachloroethane	0.627	0.517	17.5	104	0.00	17.95
114	1,2,4-trimethylbenzene	2.595	2.514	3.1	124	0.00	17.90
115 m	1,2,3-trimethylbenzene			-----NA-----			
116	sec-butylbenzene	3.762	3.565	5.2	122	0.00	18.07
117	1,3-dichlorobenzene	1.628	1.538	5.5	124	0.00	18.28
118	p-isopropyltoluene	3.201	3.080	3.8	127	0.00	18.20
119	1,4-dichlorobenzene	1.663	1.491	10.3	120	0.00	18.36
120	1,2-dichlorobenzene	1.669	1.506	9.8	121	0.00	18.75
121	benzyl chloride	1.331	1.358	-2.0	133	0.00	18.49
122 m	1,4-diethylbenzene			-----NA-----			
123	n-butylbenzene	1.542	1.541	0.1	128	0.00	18.62
124 m	1,2,4,5-tetramethylbenzen			-----NA-----			
125	1,2-dibromo-3-chloropropa	0.197	0.176	10.7	117	0.00	19.49
126	1,3,5-trichlorobenzene	1.761	1.628	7.6	122	0.00	19.63
127	hexachlorobutadiene	0.933	0.873	6.4	121	0.00	20.30
128	naphthalene	3.582	3.134	12.5	114	0.00	20.47
129	1,2,4-trichlorobenzene	1.801	1.588	11.8	119	0.00	20.21
130 m	1,2,3-trichlorobenzene	1.962	1.633	16.8	114	0.00	20.69
131	hexachloroethane	0.572	0.526	8.0	113	0.00	18.98

(#) = Out of Range  
 x156374.D MX6733.M

SPCC's out = 0 CCC's out = 0  
 Mon Aug 03 14:57:16 2015 GCMSX

**GC/MS Volatiles**

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**Raw Data**

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## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\  
 Data File : x156672.D  
 Acq On : 3 Aug 2015 2:04 pm  
 Operator : payalr  
 Sample : jB99970-1  
 Misc : MS88814,VX6744,6.2,,,,,1  
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 03 15:02:33 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M  
 Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
 QLast Update : Thu Jul 23 09:18:59 2015  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	115846	500.00	ug/L	-0.01
4) pentafluorobenzene	10.20	168	277200	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.37	114	316008	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	280972	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.34	152	167094	50.00	ug/L	0.00

## System Monitoring Compounds

45) dibromofluoromethane (s)	10.27	113	100821	50.16	ug/L	0.00
Spiked Amount	50.000	Range 70 - 122	Recovery	=	100.32%	
46) 1,2-dichloroethane-d4 (s)	10.81	65	84584	51.60	ug/L	0.00
Spiked Amount	50.000	Range 68 - 124	Recovery	=	103.20%	
75) toluene-d8 (s)	13.56	98	369555	52.41	ug/L	0.00
Spiked Amount	50.000	Range 77 - 125	Recovery	=	104.82%	
102) 4-bromofluorobenzene (s)	17.07	95	135698	50.20	ug/L	0.00
Spiked Amount	50.000	Range 72 - 130	Recovery	=	100.40%	

## Target Compounds

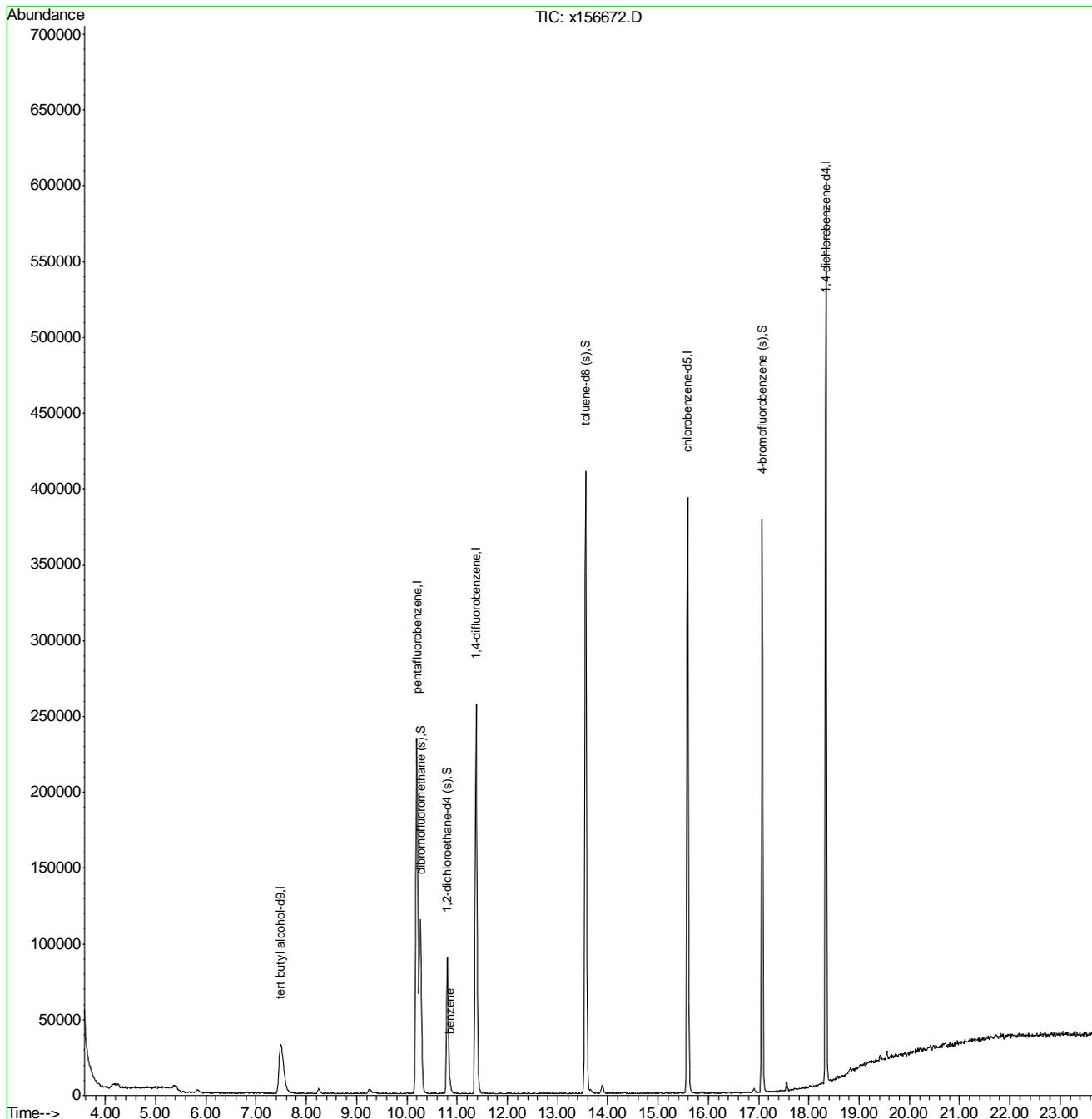
Target Compounds	R.T.	QIon	Response	Conc	Units	Qvalue
59) benzene	10.86	78	3631	0.45	ug/L	90

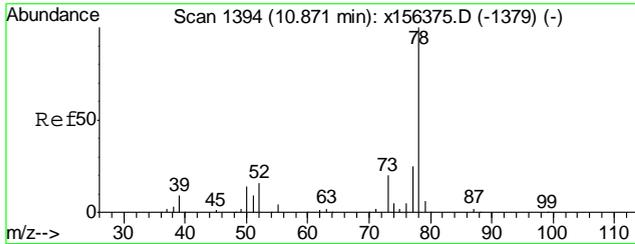
(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\  
 Data File : x156672.D  
 Acq On : 3 Aug 2015 2:04 pm  
 Operator : payalr  
 Sample : jb99970-1  
 Misc : MS88814,VX6744,6.2,,,,,1  
 ALS Vial : 8 Sample Multiplier: 1

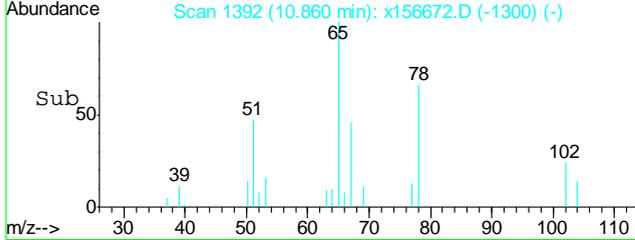
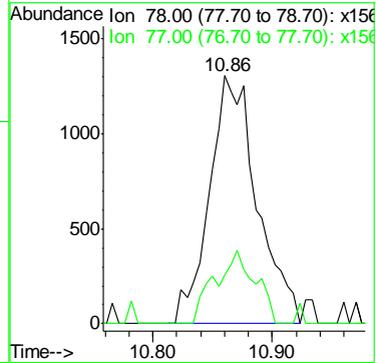
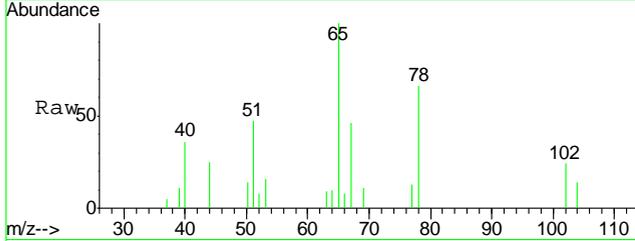
Quant Time: Aug 03 15:02:33 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M  
 Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
 QLast Update : Thu Jul 23 09:18:59 2015  
 Response via : Initial Calibration





#59  
 benzene  
 Concen: 0.45 ug/L  
 RT: 10.86 min Scan# 1392  
 Delta R.T. -0.01 min  
 Lab File: x156672.D  
 Acq: 3 Aug 2015 2:04 pm

Tgt Ion: 78 Resp: 3631  
 Ion Ratio Lower Upper  
 78 100  
 77 19.8 0.0 54.7



7.1.1  
 7

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\  
 Data File : x156673.D  
 Acq On : 3 Aug 2015 2:34 pm  
 Operator : payalr  
 Sample : jb99970-2  
 Misc : MS88814,VX6744,6.3,,,,,1  
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 15:03:34 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M  
 Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
 QLast Update : Thu Jul 23 09:18:59 2015  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	103486	500.00	ug/L	0.00
4) pentafluorobenzene	10.21	168	275135	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.38	114	312733	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	285029	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.34	152	169234	50.00	ug/L	0.00

## System Monitoring Compounds

45) dibromofluoromethane (s)	10.28	113	99397	49.82	ug/L	0.00
Spiked Amount	50.000	Range	70 - 122	Recovery	=	99.64%
46) 1,2-dichloroethane-d4 (s)	10.81	65	83781	51.49	ug/L	0.00
Spiked Amount	50.000	Range	68 - 124	Recovery	=	102.98%
75) toluene-d8 (s)	13.56	98	365875	52.43	ug/L	0.00
Spiked Amount	50.000	Range	77 - 125	Recovery	=	104.86%
102) 4-bromofluorobenzene (s)	17.07	95	137646	50.27	ug/L	0.00
Spiked Amount	50.000	Range	72 - 130	Recovery	=	100.54%

## Target Compounds

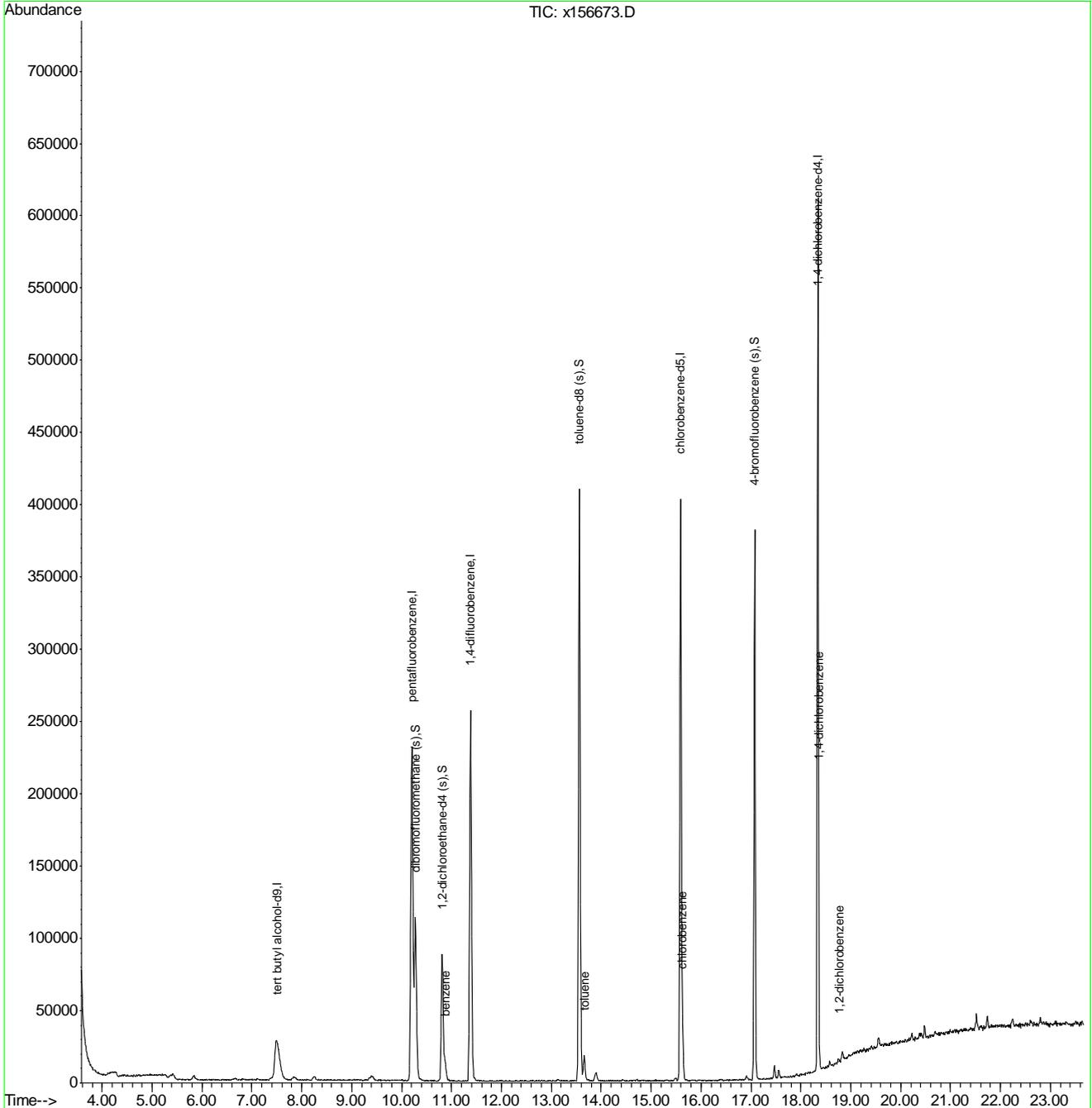
						Qvalue
59) benzene	10.88	78	13672	1.72	ug/L	95
77) toluene	13.66	92	9882	2.10	ug/L	91
91) chlorobenzene	15.63	112	20595	3.58	ug/L	96
119) 1,4-dichlorobenzene	18.36	146	2020	0.36	ug/L	71
120) 1,2-dichlorobenzene	18.76	146	836	0.15	ug/L	86

(#) = qualifier out of range (m) = manual integration (+) = signals summed

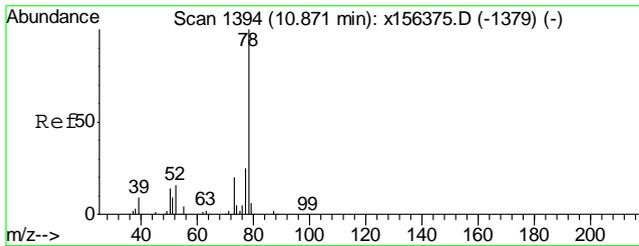
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\  
 Data File : x156673.D  
 Acq On : 3 Aug 2015 2:34 pm  
 Operator : payalr  
 Sample : jb99970-2  
 Misc : MS88814,VX6744,6.3,,,,,1  
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Aug 03 15:03:34 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M  
 Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
 QLast Update : Thu Jul 23 09:18:59 2015  
 Response via : Initial Calibration

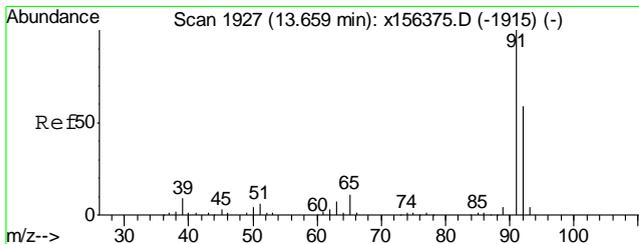
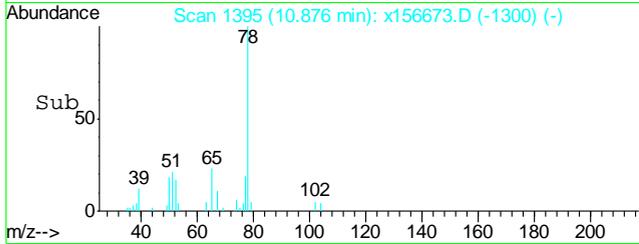
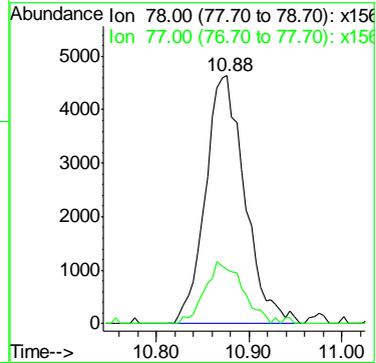
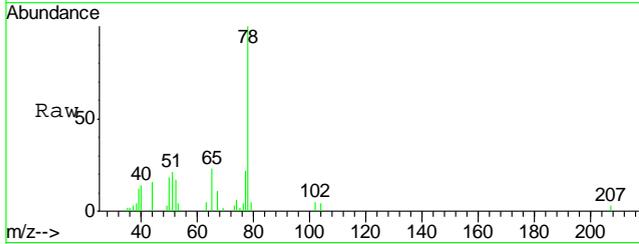


7.1.2  
7



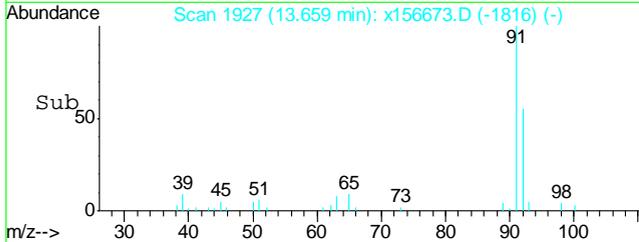
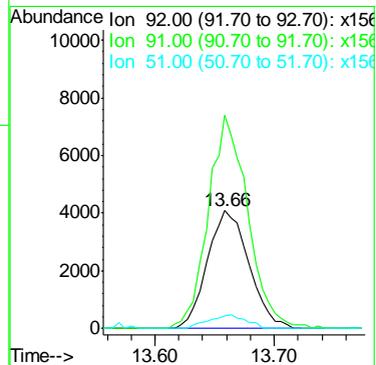
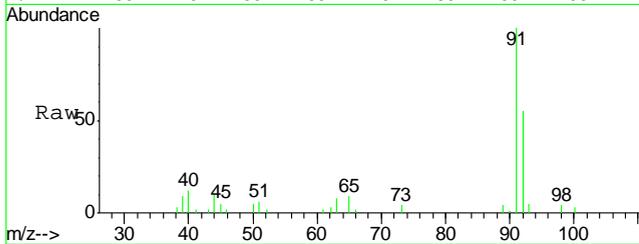
#59  
benzene  
Concen: 1.72 ug/L  
RT: 10.88 min Scan# 1395  
Delta R.T. 0.01 min  
Lab File: x156673.D  
Acq: 3 Aug 2015 2:34 pm

Tgt Ion: 78 Resp: 13672  
Ion Ratio Lower Upper  
78 100  
77 22.0 0.0 54.7

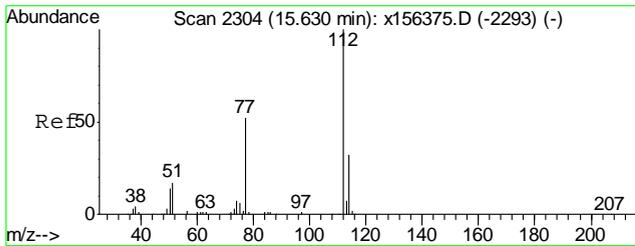


#77  
toluene  
Concen: 2.10 ug/L  
RT: 13.66 min Scan# 1927  
Delta R.T. 0.00 min  
Lab File: x156673.D  
Acq: 3 Aug 2015 2:34 pm

Tgt Ion: 92 Resp: 9882  
Ion Ratio Lower Upper  
92 100  
91 181.3 138.6 198.6  
51 11.2 0.0 39.9

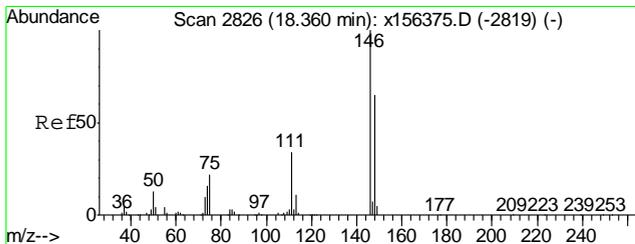
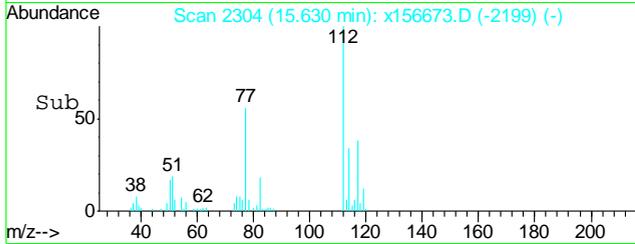
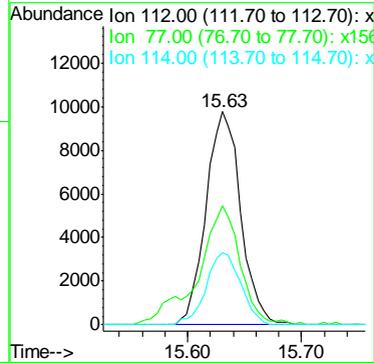
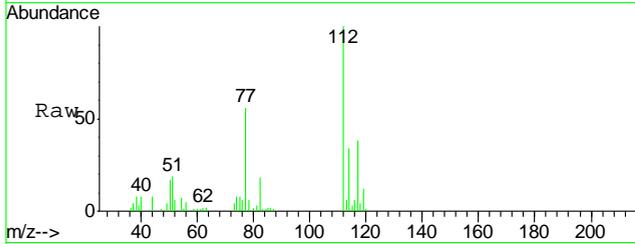


7.12  
7



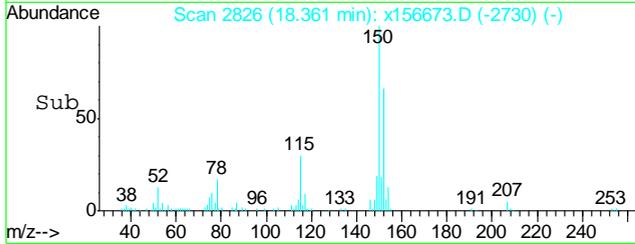
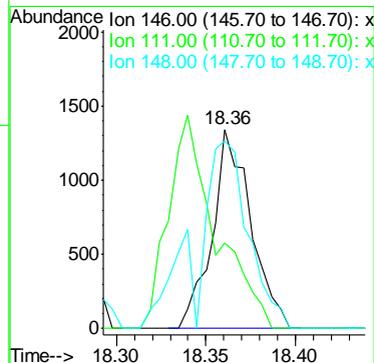
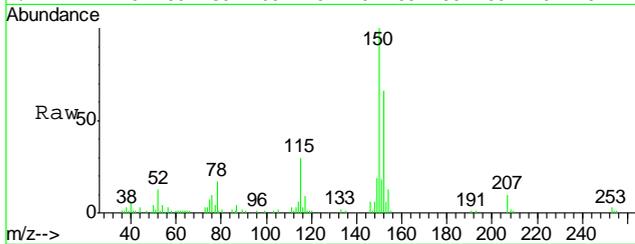
#91  
 chlorobenzene  
 Concen: 3.58 ug/L  
 RT: 15.63 min Scan# 2304  
 Delta R.T. 0.00 min  
 Lab File: x156673.D  
 Acq: 3 Aug 2015 2:34 pm

Tgt Ion	Resp	Lower	Upper
112	20595	100	
77	54.6	21.6	81.6
114	34.0	2.5	62.5

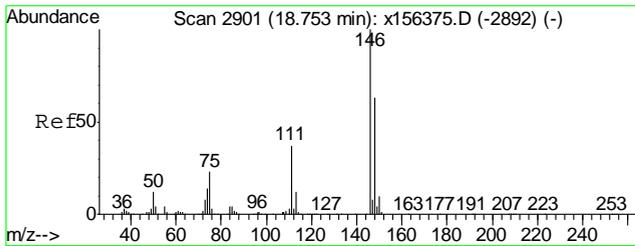


#119  
 1,4-dichlorobenzene  
 Concen: 0.36 ug/L  
 RT: 18.36 min Scan# 2826  
 Delta R.T. 0.00 min  
 Lab File: x156673.D  
 Acq: 3 Aug 2015 2:34 pm

Tgt Ion	Resp	Lower	Upper
146	2020	100	
111	43.2	4.5	64.5
148	94.0	34.9	94.9

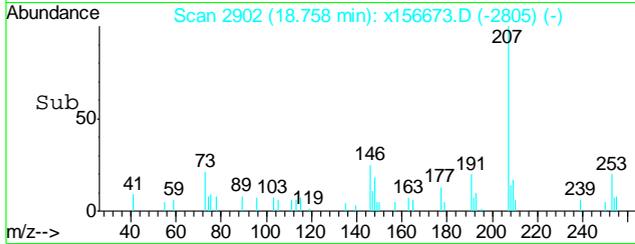
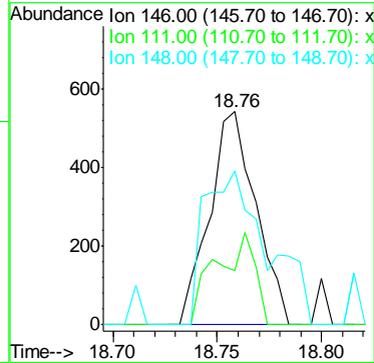
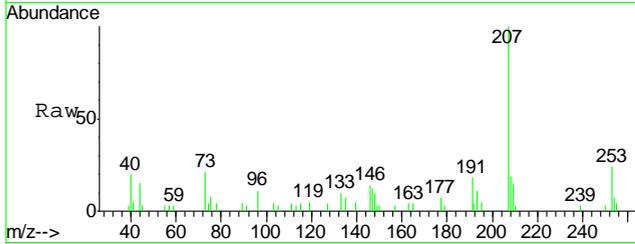


7.12  
7



#120  
 1,2-dichlorobenzene  
 Concen: 0.15 ug/L  
 RT: 18.76 min Scan# 2902  
 Delta R.T. 0.01 min  
 Lab File: x156673.D  
 Acq: 3 Aug 2015 2:34 pm

Tgt Ion	Resp	Lower	Upper
146	100		
111	25.5	6.5	66.5
148	72.1	33.0	93.0



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\  
 Data File : E227923.D  
 Acq On : 30 Jul 2015 4:02 pm  
 Operator : ThienN  
 Sample : jB99970-3  
 Misc : MS88814,VE9987,5.1,,100,10,1  
 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 30 17:08:07 2015  
 Quant Method : C:\msdchem\1\METHODS\ME9972.M  
 Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um  
 QLast Update : Wed Jul 15 17:24:08 2015  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.943	65	150220	500.00	ug/L	0.00
4) pentafluorobenzene	10.119	168	267607	50.00	ug/L	0.00
54) 1,4-difluorobenzene	11.044	114	357096	50.00	ug/L	0.00
84) chlorobenzene-d5	14.376	117	319334	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.944	152	191144	50.00	ug/L	0.00

## System Monitoring Compounds

47) dibromofluoromethane (s)	10.202	113	115847	48.06	ug/L	0.00
Spiked Amount	50.000	Range 70 - 122	Recovery	=	96.12%	
48) 1,2-dichloroethane-d4 (s)	10.626	65	149713	50.47	ug/L	0.00
Spiked Amount	50.000	Range 68 - 124	Recovery	=	100.94%	
76) toluene-d8 (s)	12.729	98	418488	49.51	ug/L	0.00
Spiked Amount	50.000	Range 77 - 125	Recovery	=	99.02%	
103) 4-bromofluorobenzene (s)	15.652	95	174989	51.54	ug/L	0.00
Spiked Amount	50.000	Range 72 - 130	Recovery	=	103.08%	

## Target Compounds

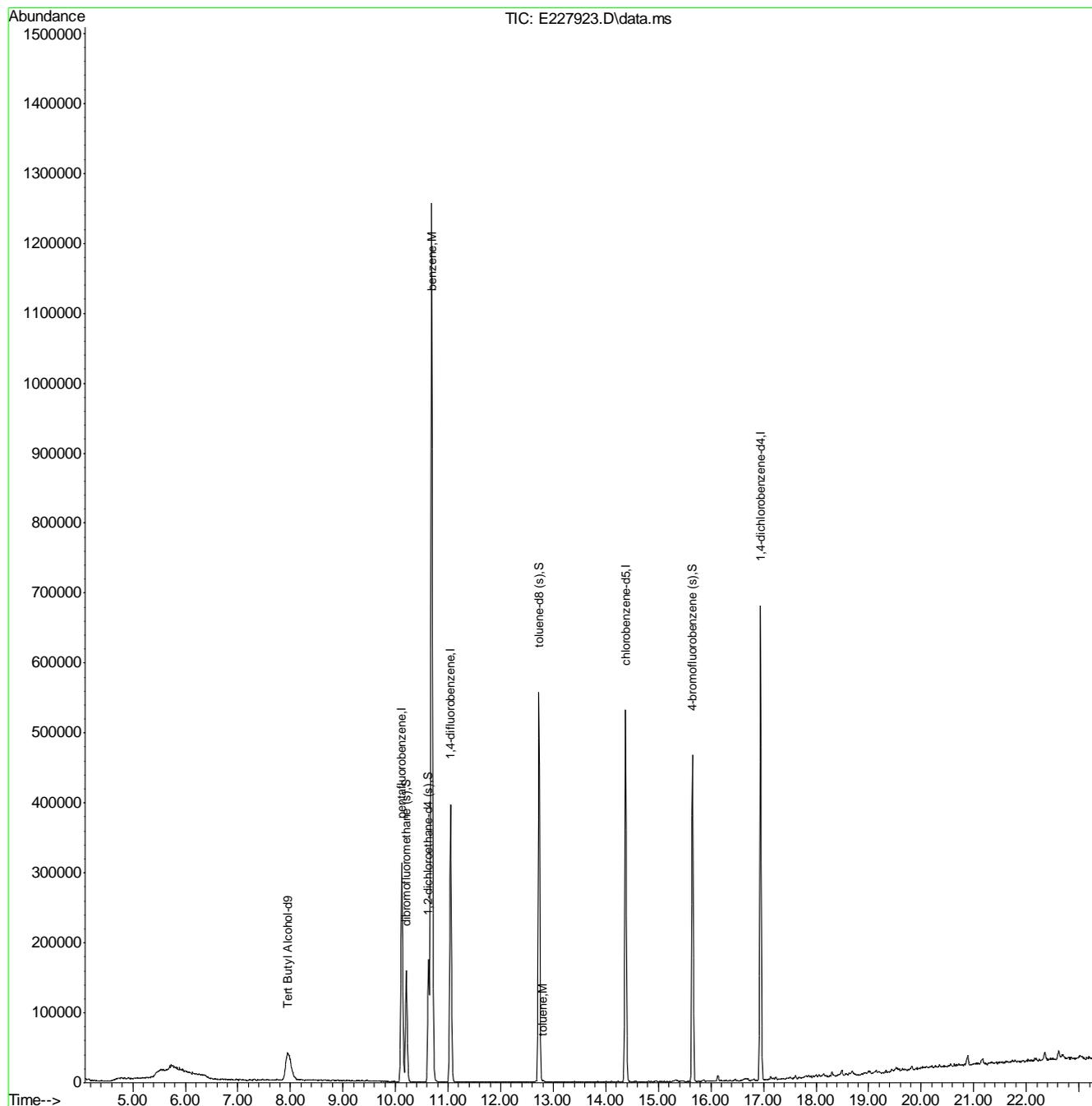
						Qvalue
62) benzene	10.684	78	1279621	119.02	ug/L	98
78) toluene	12.812	92	1263	0.20	ug/L	80

(#) = qualifier out of range (m) = manual integration (+) = signals summed

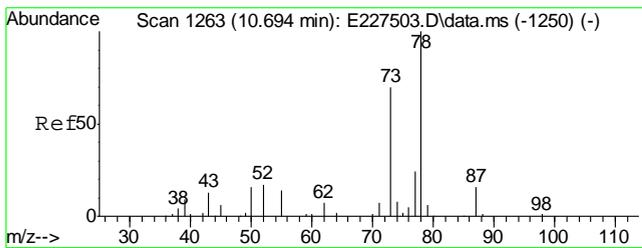
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\  
 Data File : E227923.D  
 Acq On : 30 Jul 2015 4:02 pm  
 Operator : ThienN  
 Sample : jB99970-3  
 Misc : MS88814,VE9987,5.1,,100,10,1  
 ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 30 17:08:07 2015  
 Quant Method : C:\msdchem\1\METHODS\ME9972.M  
 Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um  
 QLast Update : Wed Jul 15 17:24:08 2015  
 Response via : Initial Calibration

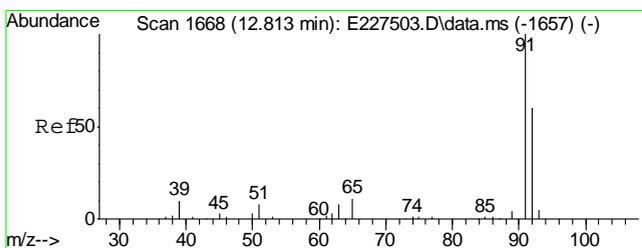
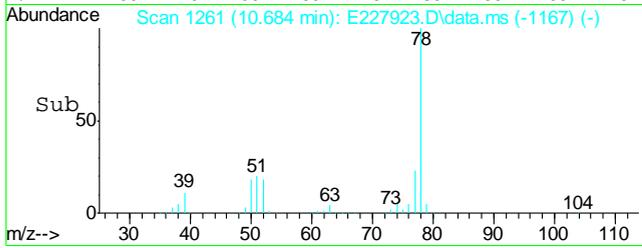
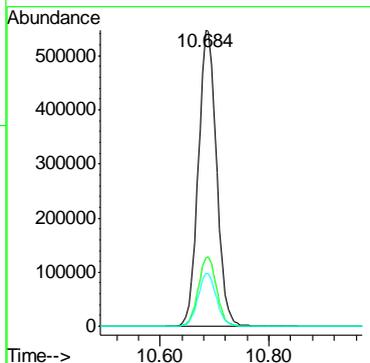
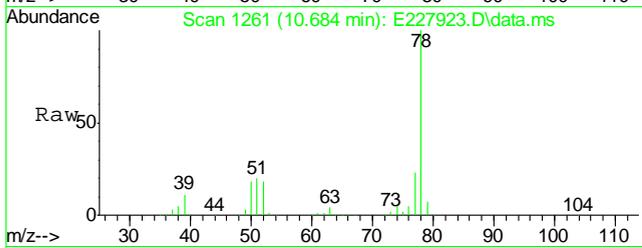


7.1.3  
7



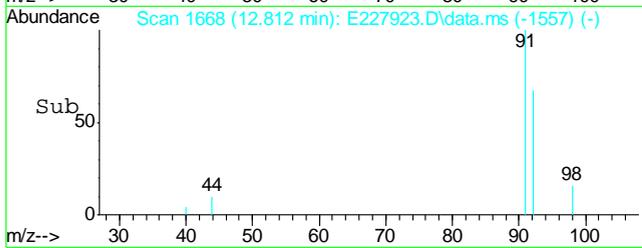
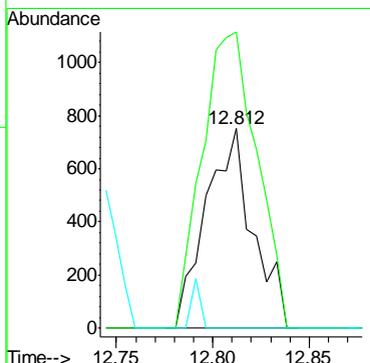
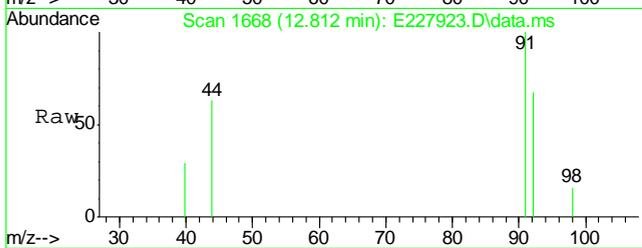
#62  
benzene  
Concen: 119.02 ug/L  
RT: 10.684 min Scan# 1261  
Delta R.T. -0.006 min  
Lab File: E227923.D  
Acq: 30 Jul 2015 4:02 pm

Tgt Ion	Resp	Lower	Upper
78	1279621		
78	100		
77	23.3	0.0	53.9
52	18.0	0.0	46.9



#78  
toluene  
Concen: 0.20 ug/L  
RT: 12.812 min Scan# 1668  
Delta R.T. -0.001 min  
Lab File: E227923.D  
Acq: 30 Jul 2015 4:02 pm

Tgt Ion	Resp	Lower	Upper
92	1263		
92	100		
91	148.5	141.7	201.7
65	0.0	0.0	50.9



7.1.3  
7

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\  
 Data File : x156671.D  
 Acq On : 3 Aug 2015 12:42 pm  
 Operator : payalr  
 Sample : jB99970-11  
 Misc : MS88814,VX6744,5.0,,,,,1  
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 15:01:42 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M  
 Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
 QLast Update : Thu Jul 23 09:18:59 2015  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	120677	500.00	ug/L	-0.01
4) pentafluorobenzene	10.21	168	281843	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.38	114	316946	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	286916	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.34	152	169832	50.00	ug/L	0.00

## System Monitoring Compounds

45) dibromofluoromethane (s)	10.27	113	100174	49.01	ug/L	0.00
Spiked Amount	50.000	Range 70 - 122	Recovery	=	98.02%	
46) 1,2-dichloroethane-d4 (s)	10.81	65	84167	50.50	ug/L	0.00
Spiked Amount	50.000	Range 68 - 124	Recovery	=	101.00%	
75) toluene-d8 (s)	13.56	98	369593	52.26	ug/L	0.00
Spiked Amount	50.000	Range 77 - 125	Recovery	=	104.52%	
102) 4-bromofluorobenzene (s)	17.07	95	137762	50.14	ug/L	0.00
Spiked Amount	50.000	Range 72 - 130	Recovery	=	100.28%	

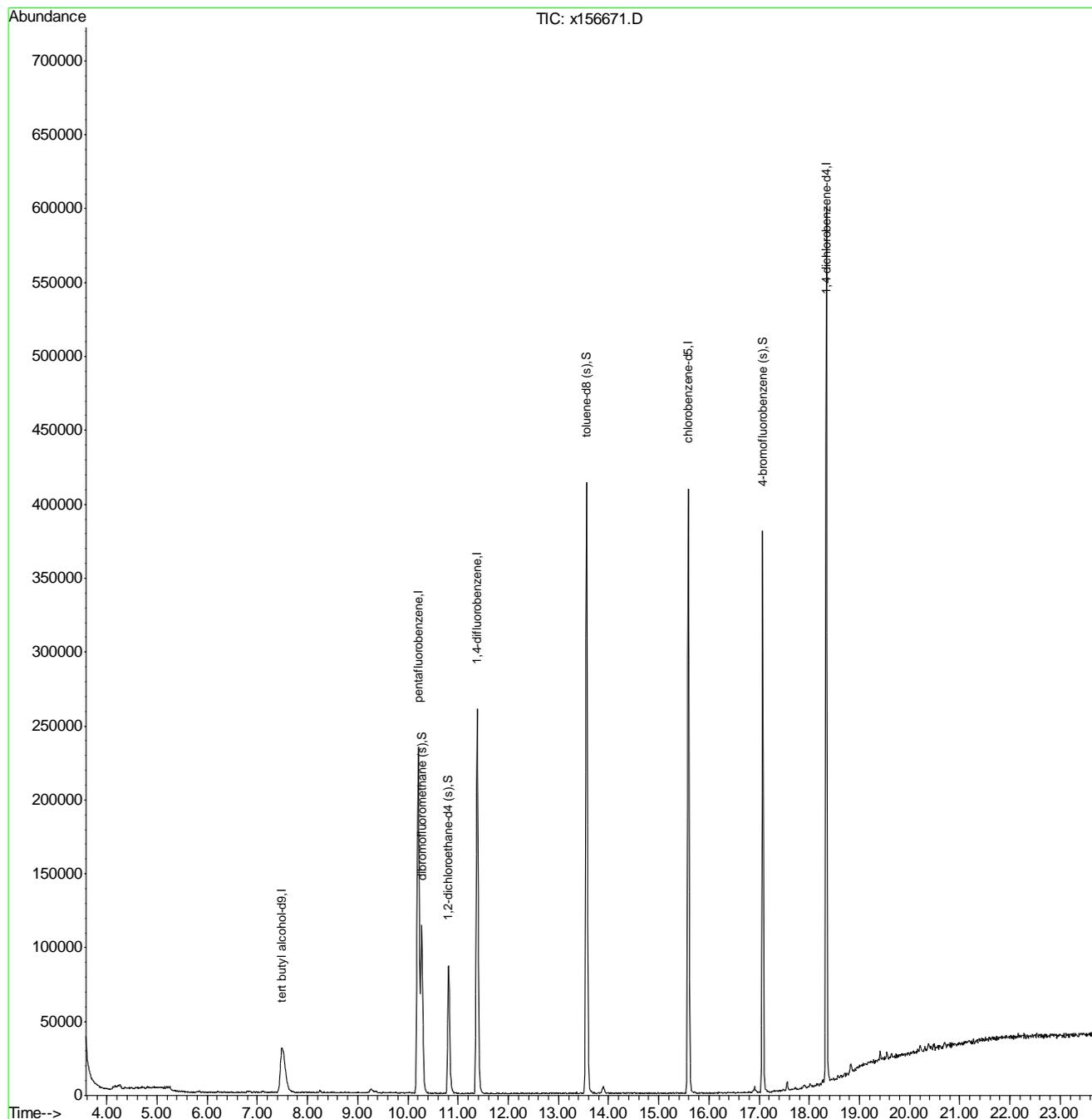
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\  
 Data File : x156671.D  
 Acq On : 3 Aug 2015 12:42 pm  
 Operator : payalr  
 Sample : jb99970-11  
 Misc : MS88814,VX6744,5.0,,,,,1  
 ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 15:01:42 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M  
 Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
 QLast Update : Thu Jul 23 09:18:59 2015  
 Response via : Initial Calibration



7.1.4  
7

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\  
 Data File : E227909.D  
 Acq On : 30 Jul 2015 8:54 am  
 Operator : ThienN  
 Sample : mbl  
 Misc : MS85727,VE9987,5,,100,5,1  
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 30 12:55:16 2015  
 Quant Method : C:\msdchem\1\METHODS\ME9972.M  
 Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um  
 QLast Update : Wed Jul 15 17:24:08 2015  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Tert Butyl Alcohol-d9	7.937	65	120021	500.00	ug/L	0.00
4) pentafluorobenzene	10.118	168	244627	50.00	ug/L	0.00
54) 1,4-difluorobenzene	11.044	114	332314	50.00	ug/L	0.00
84) chlorobenzene-d5	14.376	117	292596	50.00	ug/L	0.00
101) 1,4-dichlorobenzene-d4	16.944	152	176914	50.00	ug/L	0.00

## System Monitoring Compounds

47) dibromofluoromethane (s)	10.207	113	109605	49.74	ug/L	0.00
Spiked Amount	50.000	Range 70 - 122	Recovery	=	99.48%	
48) 1,2-dichloroethane-d4 (s)	10.631	65	140895	51.95	ug/L	0.00
Spiked Amount	50.000	Range 68 - 124	Recovery	=	103.90%	
76) toluene-d8 (s)	12.733	98	386775	49.17	ug/L	0.00
Spiked Amount	50.000	Range 77 - 125	Recovery	=	98.34%	
103) 4-bromofluorobenzene (s)	15.652	95	160697	51.13	ug/L	0.00
Spiked Amount	50.000	Range 72 - 130	Recovery	=	102.26%	

Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

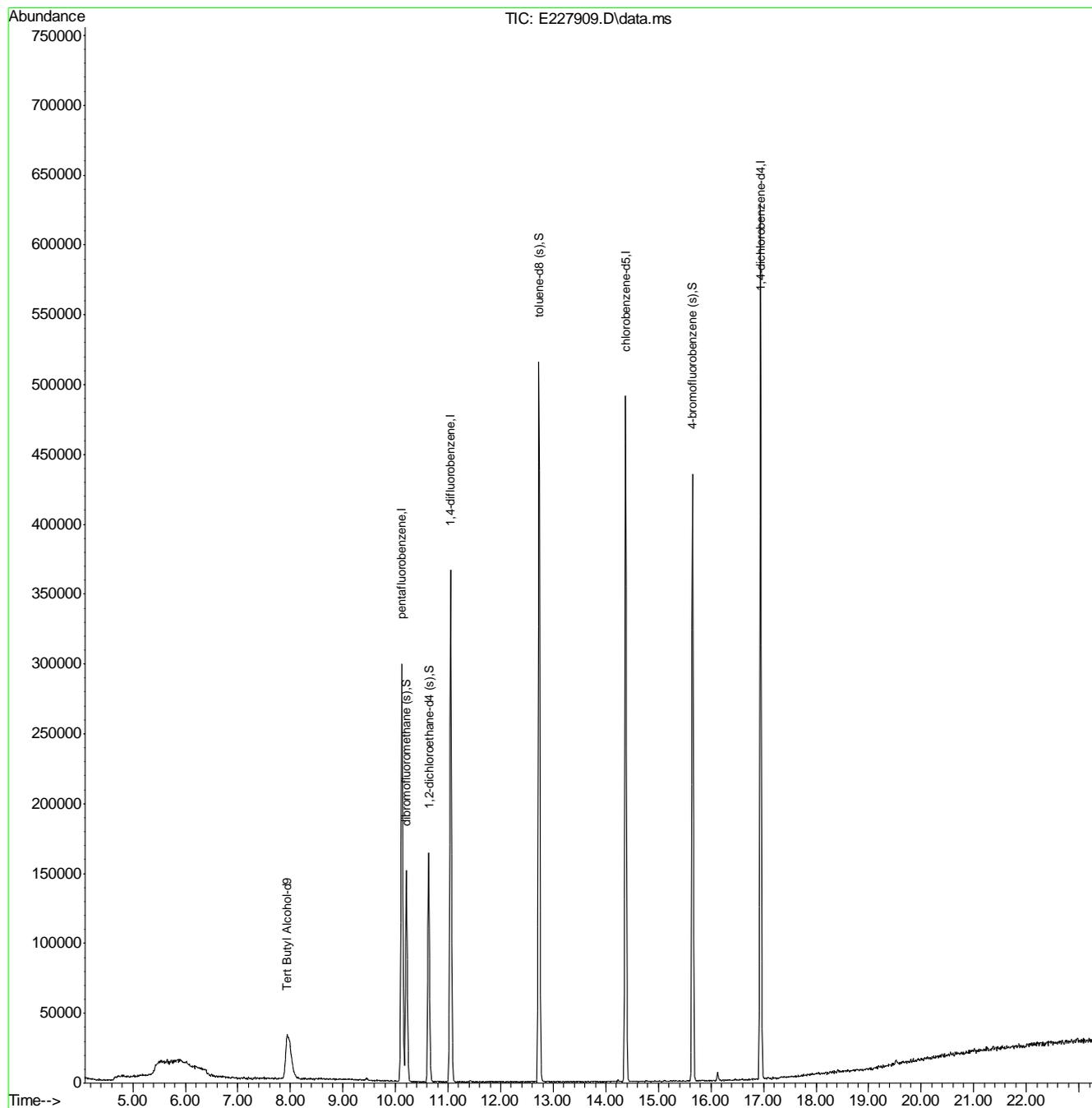
7.2.1

7

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\  
Data File : E227909.D  
Acq On : 30 Jul 2015 8:54 am  
Operator : ThienN  
Sample : mbl  
Misc : MS85727,VE9987,5,,100,5,1  
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 30 12:55:16 2015  
Quant Method : C:\msdchem\1\METHODS\ME9972.M  
Quant Title : SW846 8260C,ZB624 60m x 0.25mm x 1.4um  
QLast Update : Wed Jul 15 17:24:08 2015  
Response via : Initial Calibration



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\  
 Data File : x156668.D  
 Acq On : 3 Aug 2015 10:36 am  
 Operator : payalr  
 Sample : mb  
 Misc : MS88848,VX6744,5.0,,,,,1  
 ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 14:58:57 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M  
 Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
 QLast Update : Thu Jul 23 09:18:59 2015  
 Response via : Initial Calibration

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) tert butyl alcohol-d9	7.49	65	98985	500.00	ug/L	-0.01
4) pentafluorobenzene	10.20	168	263761	50.00	ug/L	0.00
53) 1,4-difluorobenzene	11.38	114	292384	50.00	ug/L	0.00
83) chlorobenzene-d5	15.59	117	271178	50.00	ug/L	0.00
98) 1,4-dichlorobenzene-d4	18.33	152	163676	50.00	ug/L	0.00

## System Monitoring Compounds

45) dibromofluoromethane (s)	10.27	113	93652	48.96	ug/L	0.00
Spiked Amount	50.000	Range	70 - 122	Recovery	=	97.92%
46) 1,2-dichloroethane-d4 (s)	10.81	65	76474	49.03	ug/L	0.00
Spiked Amount	50.000	Range	68 - 124	Recovery	=	98.06%
75) toluene-d8 (s)	13.56	98	349166	53.52	ug/L	0.00
Spiked Amount	50.000	Range	77 - 125	Recovery	=	107.04%
102) 4-bromofluorobenzene (s)	17.07	95	131433	49.63	ug/L	0.00
Spiked Amount	50.000	Range	72 - 130	Recovery	=	99.26%

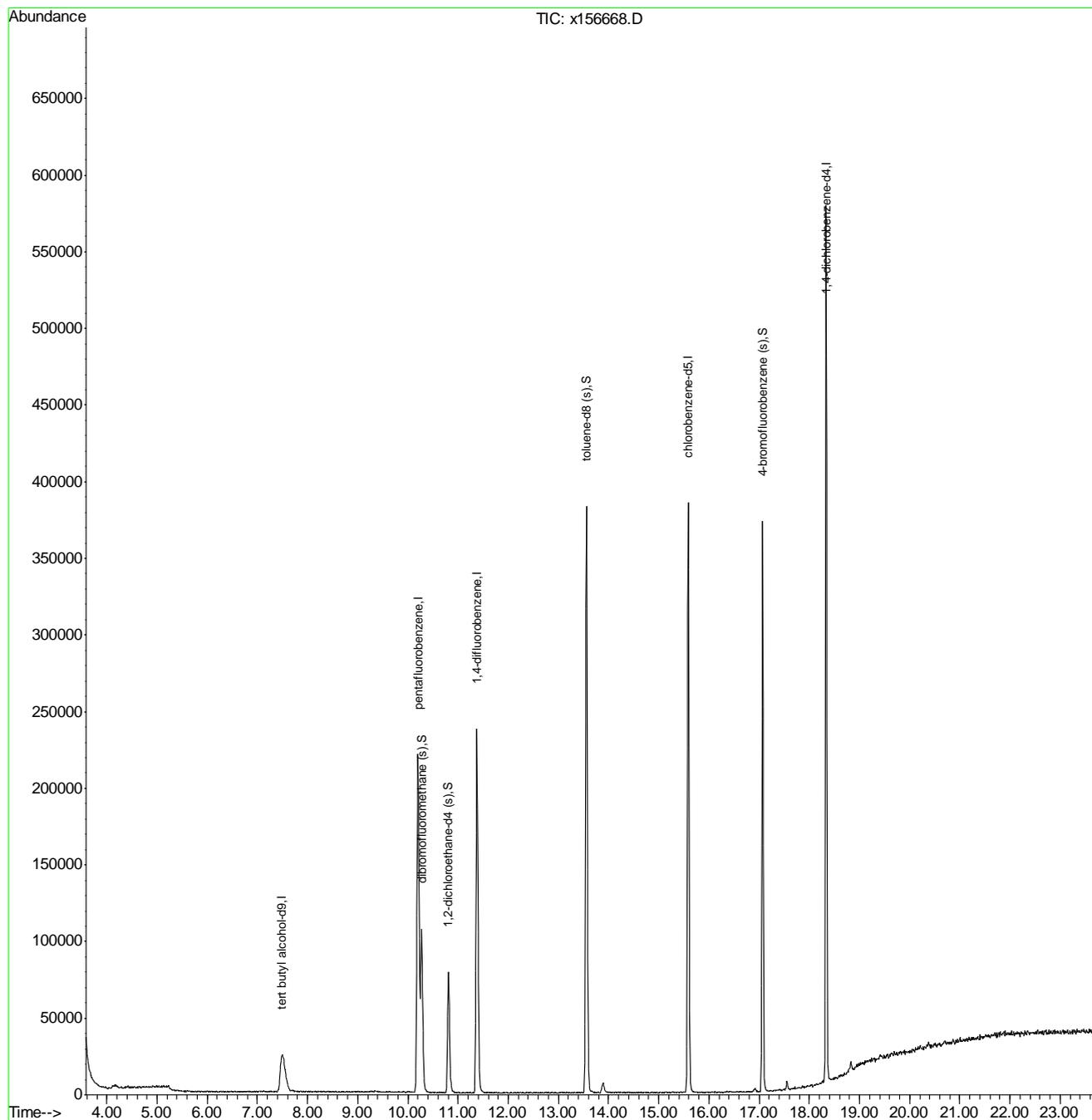
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\data\  
Data File : x156668.D  
Acq On : 3 Aug 2015 10:36 am  
Operator : payalr  
Sample : mb  
Misc : MS88848,VX6744,5.0,,,,,1  
ALS Vial : 4 Sample Multiplier: 1

Quant Time: Aug 03 14:58:57 2015  
Quant Method : C:\MSDCHEM\1\METHODS\MX6733.M  
Quant Title : Method 8260B/8260C, ZB624 60m x 0.25mm x 1.4um  
QLast Update : Thu Jul 23 09:18:59 2015  
Response via : Initial Calibration



## GC/MS Semi-volatiles

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### QC Data Summaries

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#### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries

**Method Blank Summary**

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85890-MB1	2P51008.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191

The QC reported here applies to the following samples:

Method: SW846 8270D

JB99970-1, JB99970-2, JB99970-3

CAS No.	Compound	Result	RL	MDL	Units	Q
120-12-7	Anthracene	ND	33	7.5	ug/kg	
56-55-3	Benzo(a)anthracene	ND	33	6.4	ug/kg	
50-32-8	Benzo(a)pyrene	ND	33	8.0	ug/kg	
205-99-2	Benzo(b)fluoranthene	ND	33	6.6	ug/kg	
191-24-2	Benzo(g,h,i)perylene	ND	33	11	ug/kg	
218-01-9	Chrysene	ND	33	8.2	ug/kg	
86-73-7	Fluorene	ND	33	25	ug/kg	
85-01-8	Phenanthrene	ND	33	7.1	ug/kg	
129-00-0	Pyrene	ND	33	7.5	ug/kg	

CAS No.	Surrogate Recoveries	Limits	
367-12-4	2-Fluorophenol	64%	22-121%
4165-62-2	Phenol-d5	68%	27-119%
118-79-6	2,4,6-Tribromophenol	104%	17-158%
4165-60-0	Nitrobenzene-d5	93%	33-127%
321-60-8	2-Fluorobiphenyl	95%	41-121%
1718-51-0	Terphenyl-d14	108%	44-137%

# Blank Spike Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85890-BS1	2P51009.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191

The QC reported here applies to the following samples:

Method: SW846 8270D

JB99970-1, JB99970-2, JB99970-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
120-12-7	Anthracene	1670	1140	68	58-123
56-55-3	Benzo(a)anthracene	1670	1250	75	56-119
50-32-8	Benzo(a)pyrene	1670	1310	79	55-129
205-99-2	Benzo(b)fluoranthene	1670	1210	73	54-130
191-24-2	Benzo(g,h,i)perylene	1670	1160	70	49-130
218-01-9	Chrysene	1670	1290	77	58-125
86-73-7	Fluorene	1670	1340	80	58-124
85-01-8	Phenanthrene	1670	1100	66	55-120
129-00-0	Pyrene	1670	1190	71	55-123

CAS No.	Surrogate Recoveries	BSP	Limits
367-12-4	2-Fluorophenol	64%	22-121%
4165-62-2	Phenol-d5	64%	27-119%
118-79-6	2,4,6-Tribromophenol	93%	17-158%
4165-60-0	Nitrobenzene-d5	86%	33-127%
321-60-8	2-Fluorobiphenyl	86%	41-121%
1718-51-0	Terphenyl-d14	103%	44-137%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP85890-MS	2P51010.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
OP85890-MSD	2P51011.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191
JB99970-1	2P51012.D	1	07/29/15	AD	07/29/15	OP85890	E2P2191

The QC reported here applies to the following samples:

Method: SW846 8270D

JB99970-1, JB99970-2, JB99970-3

CAS No.	Compound	JB99970-1 ug/kg	Spike Q	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD	
120-12-7	Anthracene	ND		2230	1670	75	2230	1710	77	2	32-142/38
56-55-3	Benzo(a)anthracene	ND		2230	1800	81	2230	1910	86	6	30-139/42
50-32-8	Benzo(a)pyrene	ND		2230	1950	88	2230	1980	89	2	32-145/42
205-99-2	Benzo(b)fluoranthene	ND		2230	1780	80	2230	1830	82	3	30-147/43
191-24-2	Benzo(g,h,i)perylene	ND		2230	1720	77	2230	1860	84	8	27-148/41
218-01-9	Chrysene	ND		2230	1840	83	2230	1950	88	6	31-144/42
86-73-7	Fluorene	ND		2230	1930	87	2230	1960	88	2	37-138/39
85-01-8	Phenanthrene	ND		2230	1590	71	2230	1630	73	2	28-142/42
129-00-0	Pyrene	ND		2230	1720	77	2230	1780	80	3	27-150/42

CAS No.	Surrogate Recoveries	MS	MSD	JB99970-1	Limits
367-12-4	2-Fluorophenol	63%	65%		22-121%
4165-62-2	Phenol-d5	64%	63%		27-119%
118-79-6	2,4,6-Tribromophenol	91%	93%		17-158%
4165-60-0	Nitrobenzene-d5	89%	93%	93%	33-127%
321-60-8	2-Fluorobiphenyl	90%	92%	99%	41-121%
1718-51-0	Terphenyl-d14	106%	110%	96%	44-137%

\* = Outside of Control Limits.

# Instrument Performance Check (DFTPP)

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample:	E2P2153-DFTPP	Injection Date:	07/02/15
Lab File ID:	2P50232.D	Injection Time:	10:12
Instrument ID:	GCMS2P		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	113881	36.7	Pass
68	Less than 2.0% of mass 69	1174	0.38 (0.87) <sup>a</sup>	Pass
69	Mass 69 relative abundance	134467	43.3	Pass
70	Less than 2.0% of mass 69	881	0.28 (0.66) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	151672	48.8	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	310659	100.0	Pass
199	5.0 - 9.0% of mass 198	21954	7.07	Pass
275	10.0 - 30.0% of mass 198	66709	21.5	Pass
365	1.0 - 100.0% of mass 198	7849	2.53	Pass
441	Present, but less than mass 443	35416	11.4 (83.2) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	220629	71.0	Pass
443	17.0 - 23.0% of mass 442	42549	13.7 (19.3) <sup>c</sup>	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P2153-IC2153	2P50233.D	07/02/15	10:31	00:19	Initial cal 2
E2P2153-IC2153	2P50234.D	07/02/15	11:04	00:52	Initial cal 100
E2P2153-IC2153	2P50235.D	07/02/15	11:55	01:43	Initial cal 1
E2P2153-IC2153	2P50236.D	07/02/15	12:28	02:16	Initial cal 80
E2P2153-ICC2153	2P50237.D	07/02/15	12:49	02:37	Initial cal 50
E2P2153-IC2153	2P50238.D	07/02/15	13:10	02:58	Initial cal 25
E2P2153-IC2153	2P50239.D	07/02/15	13:31	03:19	Initial cal 10
E2P2153-IC2153	2P50240.D	07/02/15	13:52	03:40	Initial cal 5

8.4.1  
8

# Instrument Performance Check (DFTPP)

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample:	E2P2154-DFTPP	Injection Date:	07/02/15
Lab File ID:	2P50241.D	Injection Time:	14:10
Instrument ID:	GCMS2P		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	123299	37.3	Pass
68	Less than 2.0% of mass 69	359	0.11 (0.24) <sup>a</sup>	Pass
69	Mass 69 relative abundance	150362	45.4	Pass
70	Less than 2.0% of mass 69	887	0.27 (0.59) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	167557	50.6	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	330840	100.0	Pass
199	5.0 - 9.0% of mass 198	20968	6.34	Pass
275	10.0 - 30.0% of mass 198	72037	21.8	Pass
365	1.0 - 100.0% of mass 198	9256	2.80	Pass
441	Present, but less than mass 443	37253	11.3 (82.1) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	238955	72.2	Pass
443	17.0 - 23.0% of mass 442	45397	13.7 (19.0) <sup>c</sup>	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P2154-IC2154	2P50242.D	07/02/15	14:44	00:34	Initial cal 100
E2P2154-IC2154	2P50243.D	07/02/15	15:05	00:55	Initial cal 80
E2P2154-IC2154	2P50244.D	07/02/15	15:26	01:16	Initial cal 25
E2P2154-IC2154	2P50245.D	07/02/15	15:47	01:37	Initial cal 10
E2P2154-ICC2154	2P50246.D	07/02/15	16:08	01:58	Initial cal 50
E2P2154-IC2154	2P50247.D	07/02/15	16:29	02:19	Initial cal 2
E2P2154-IC2154	2P50248.D	07/02/15	16:50	02:40	Initial cal 5
E2P2154-IC2154	2P50249.D	07/02/15	17:11	03:01	Initial cal 1
E2P2154-ICV2153	2P50251.D	07/02/15	17:53	03:43	Initial cal verification 50
E2P2154-ICV2154	2P50252A.D	07/02/15	18:14	04:04	Initial cal verification 50
E2P2154-ICV2153	2P50252.D	07/02/15	18:14	04:04	Initial cal verification 50
E2P2154-ICV2153	2P50254.D	07/02/15	18:56	04:46	Initial cal verification 50
E2P2154-ICV2154	2P50255.D	07/02/15	19:17	05:07	Initial cal verification 50
E2P2154-ICV2154	2P50256A.D	07/02/15	19:38	05:28	Initial cal verification 50
E2P2154-ICV2153	2P50256.D	07/02/15	19:38	05:28	Initial cal verification 50

8.4.2  
8

# Instrument Performance Check (DFTPP)

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample:	E2P2156-DFTPP	Injection Date:	07/06/15
Lab File ID:	2P50260.D	Injection Time:	07:26
Instrument ID:	GCMS2P		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	199677	37.5	Pass
68	Less than 2.0% of mass 69	1367	0.26 (0.56) <sup>a</sup>	Pass
69	Mass 69 relative abundance	242120	45.5	Pass
70	Less than 2.0% of mass 69	410	0.08 (0.17) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	266971	50.2	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	532288	100.0	Pass
199	5.0 - 9.0% of mass 198	35884	6.74	Pass
275	10.0 - 30.0% of mass 198	116493	21.9	Pass
365	1.0 - 100.0% of mass 198	13547	2.55	Pass
441	Present, but less than mass 443	56571	10.6 (79.1) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	363925	68.4	Pass
443	17.0 - 23.0% of mass 442	71533	13.4 (19.7) <sup>c</sup>	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P2156-ICV2154	2P50261A.D	07/06/15	07:39	00:13	Initial cal verification 50
E2P2156-ICV2153	2P50261.D	07/06/15	07:39	00:13	Initial cal verification 50
E2P2156-ICV2153	2P50262.D	07/06/15	08:05	00:39	Initial cal verification 50

8.4.3  
8

# Instrument Performance Check (DFTPP)

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample:	E2P2191-DFTPP	Injection Date:	07/29/15
Lab File ID:	2P51004.D	Injection Time:	16:33
Instrument ID:	GCMS2P		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	227883	44.9	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
69	Mass 69 relative abundance	272542	53.7	Pass
70	Less than 2.0% of mass 69	2270	0.45 (0.83) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	239596	47.2	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	507947	100.0	Pass
199	5.0 - 9.0% of mass 198	36701	7.23	Pass
275	10.0 - 30.0% of mass 198	127699	25.1	Pass
365	1.0 - 100.0% of mass 198	15971	3.14	Pass
441	Present, but less than mass 443	68264	13.4 (86.4) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	422699	83.2	Pass
443	17.0 - 23.0% of mass 442	78981	15.5 (18.7) <sup>c</sup>	Pass

- (a) Value is % of mass 69
- (b) Value is % of mass 443
- (c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E2P2191-CC2153	2P51005.D	07/29/15	16:45	00:12	Continuing cal 25
OP85839-MB1	2P51007.D	07/29/15	17:33	01:00	Method Blank
OP85890-MB1	2P51008.D	07/29/15	17:54	01:21	Method Blank
OP85890-BS1	2P51009.D	07/29/15	18:37	02:04	Blank Spike
OP85890-MS	2P51010.D	07/29/15	18:59	02:26	Matrix Spike
OP85890-MSD	2P51011.D	07/29/15	19:20	02:47	Matrix Spike Duplicate
JB99970-1	2P51012.D	07/29/15	19:41	03:08	MH-617-6-5
JB99970-2	2P51013.D	07/29/15	20:03	03:30	MH-619-6-5
JB99970-3	2P51014.D	07/29/15	20:24	03:51	MH-618-1-3
ZZZZZZ	2P51015.D	07/29/15	20:45	04:12	(unrelated sample)
ZZZZZZ	2P51016.D	07/29/15	21:06	04:33	(unrelated sample)
ZZZZZZ	2P51017.D	07/29/15	21:28	04:55	(unrelated sample)
ZZZZZZ	2P51018.D	07/29/15	21:49	05:16	(unrelated sample)
ZZZZZZ	2P51019.D	07/29/15	22:10	05:37	(unrelated sample)
ZZZZZZ	2P51020.D	07/29/15	22:32	05:59	(unrelated sample)
ZZZZZZ	2P51021.D	07/29/15	22:53	06:20	(unrelated sample)
ZZZZZZ	2P51022.D	07/29/15	23:14	06:41	(unrelated sample)
ZZZZZZ	2P51023.D	07/29/15	23:36	07:03	(unrelated sample)
ZZZZZZ	2P51024.D	07/29/15	23:57	07:24	(unrelated sample)

8.4.4  
8

# Instrument Performance Check (DFTPP)

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample:	E2P2191-DFTPP	Injection Date:	07/29/15
Lab File ID:	2P51004.D	Injection Time:	16:33
Instrument ID:	GCMS2P		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
<i>ZZZZZZ</i>	2P51025.D	07/30/15	00:18	07:45	(unrelated sample)
<i>ZZZZZZ</i>	2P51026.D	07/30/15	00:39	08:06	(unrelated sample)
<i>ZZZZZZ</i>	2P51027.D	07/30/15	01:01	08:28	(unrelated sample)

# Semivolatiles Internal Standard Area Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Check Std:	E2P2191-CC2153	Injection Date:	07/29/15
Lab File ID:	2P51005.D	Injection Time:	16:45
Instrument ID:	GCMS2P	Method:	SW846 8270D

	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
Check Std	1355268	4.56	4523811	5.61	2866951	7.06	5382704	8.33	5688521	11.60	4911224	13.59
Upper Limit <sup>a</sup>	2710536	5.06	9047622	6.11	5733902	7.56	107654088.83		1137704212.10		9822448	14.09
Lower Limit <sup>b</sup>	677634	4.06	2261906	5.11	1433476	6.56	2691352	7.83	2844261	11.10	2455612	13.09

Lab Sample ID	IS 1		IS 2		IS 3		IS 4		IS 5		IS 6	
	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT	AREA	RT
OP85839-MB1	2192413	4.56	7182008	5.61	4969055	7.06	8070282	8.33	1026759511.59		9760303	13.59
OP85890-MB1	1399128	4.56	4942182	5.61	3122031	7.05	5645619	8.33	6273796	11.59	5278010	13.59
OP85890-BS1	1487445	4.56	4876630	5.61	3057432	7.06	5684926	8.33	5632549	11.59	5583739	13.59
OP85890-MS	1407690	4.56	4647339	5.61	2960074	7.06	5537928	8.33	5521533	11.59	5104138	13.59
OP85890-MSD	1405330	4.56	4588847	5.61	2845232	7.06	5249771	8.33	5178558	11.59	5200170	13.59
JB99970-1	1507946	4.56	5369065	5.61	3232518	7.05	5764958	8.33	6197070	11.58	5480680	13.58
JB99970-2	1336780	4.56	4667281	5.61	2862541	7.05	5097906	8.33	5240175	11.58	4503314	13.58
JB99970-3	1470656	4.56	5215252	5.61	3179070	7.05	5523089	8.33	5877756	11.58	5295054	13.58
ZZZZZZ	1436062	4.56	5056700	5.61	3167139	7.05	5943714	8.33	6663023	11.59	5655160	13.59
ZZZZZZ	1302804	4.56	4386560	5.61	2727492	7.05	4945462	8.33	5578798	11.58	4771402	13.58
ZZZZZZ	1472618	4.56	5022629	5.61	2893953	7.05	5002571	8.33	5302956	11.58	4520685	13.58
ZZZZZZ	1553881	4.56	5330604	5.61	3232168	7.05	5781632	8.33	5981792	11.59	5080355	13.58
ZZZZZZ	1515626	4.56	5260931	5.61	3302521	7.05	5938337	8.33	6408337	11.58	5314715	13.58
ZZZZZZ	1369833	4.56	4842392	5.61	3143334	7.05	5098652	8.33	6464471	11.59	5902233	13.58
ZZZZZZ	1619534	4.56	5920505	5.61	3713648	7.05	6803611	8.33	7343174	11.59	6158702	13.59
ZZZZZZ	1524690	4.56	5343370	5.61	3230359	7.05	5780783	8.33	5950546	11.58	5047124	13.58
ZZZZZZ	1525818	4.56	5209633	5.61	3593890	7.05	6449784	8.33	7171662	11.59	6015150	13.59
ZZZZZZ	1707426	4.56	5874012	5.61	3602815	7.05	6265918	8.33	5892721	11.59	4840622	13.59
ZZZZZZ	1742849	4.56	5762909	5.61	3379189	7.05	5537717	8.33	5045728	11.60	4938733	13.61
ZZZZZZ	1544855	4.56	5097883	5.61	2604363	7.06	4164361	8.34	4048695	11.60	3762185	13.60
ZZZZZZ	1429517	4.56	4845023	5.62	2943229	7.07	5116233	8.35	5111095	11.61	4482058	13.61

- IS 1 = 1,4-Dichlorobenzene-d4
- IS 2 = Naphthalene-d8
- IS 3 = Acenaphthene-D10
- IS 4 = Phenanthrene-d10
- IS 5 = Chrysene-d12
- IS 6 = Perylene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.  
 (b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

8.5.1  
8

# Semivolatile Surrogate Recovery Summary

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Method: SW846 8270D	Matrix: SO
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Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JB99970-1	2P51012.D	93	99	96
JB99970-2	2P51013.D	83	88	91
JB99970-3	2P51014.D	87	92	89
OP85890-BS1	2P51009.D	86	86	103
OP85890-MB1	2P51008.D	93	95	108
OP85890-MS	2P51010.D	89	90	106
OP85890-MSD	2P51011.D	93	92	110

Surrogate Compounds	Recovery Limits
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S1 = Nitrobenzene-d5	33-127%
S2 = 2-Fluorobiphenyl	41-121%
S3 = Terphenyl-d14	44-137%

8.6.1

8

# Initial Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2153-ICC2153  
 Lab FileID: 2P50237.D

## Response Factor Report MS2P

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Thu Jul 02 17:43:45 2015  
 Response via : Initial Calibration

### Calibration Files

2 =2p50233.D 5 =2p50240.D 25 =2p50238.D 80 =2p50236.D  
 100 =2p50234.D 50 =2p50237.D 1 =2p50235.D 10 =2p50239.D

Compound	2	5	25	80	100	50	1	10	Avg	%RSD
-----										
1) I 1,4-Dichlorobenzene-d	-----ISTD-----									
2) 1,4-Dioxane	0.555	0.621	0.567	0.591	0.613	0.566	0.713	0.571	0.600	8.60
3) Pyridine	1.407	1.540	1.470	1.454	1.469	1.448	1.584	1.458	1.479	3.81
4) N-Nitrosodim	0.866	0.912	0.918	0.949	0.947	0.915	0.905	0.926	0.917	2.86
5) 2-Fluorophen	1.375	1.476	1.452	1.495	1.423	1.450	1.369	1.388	1.428	3.32
6) Indene	2.319	2.461	2.264	2.105	2.035	2.150	2.422	2.266	2.253	6.64
7) Cumene	3.069	3.366	3.229	3.019	2.970	3.115	3.228	3.177	3.147	4.11
8) Phenol-d5	1.519	1.706	1.683	1.686	1.621	1.692	1.601	1.622	1.641	3.84
9) Phenol	1.766	1.880	1.796	1.587	1.550	1.671	1.776	1.798	1.728	6.60
10) Aniline	1.996	2.159	1.921	1.708	1.663	1.801	2.027	1.948	1.903	8.83
11) bis(2-Chloro	1.290	1.344	1.231	1.172	1.118	1.167	1.324	1.247	1.237	6.50
12) 2-Chlorophen	1.396	1.475	1.332	1.225	1.190	1.245	1.416	1.351	1.329	7.59
13) Decane	1.916	1.973	1.777	1.509	1.480	1.614	1.926	1.806	1.750	11.04
14) 1,3-Dichloro	1.660	1.718	1.535	1.463	1.415	1.467	1.638	1.563	1.558	6.90
15) 1,4-Dichloro	1.554	1.630	1.453	1.384	1.355	1.400	1.590	1.483	1.481	6.84
16) Benzyl alcoh	0.740	0.798	0.778	0.768	0.742	0.763	0.705	0.750	0.755	3.72
17) 1,2-Dichloro	1.527	1.583	1.390	1.239	1.207	1.275	1.525	1.472	1.402	10.40
18) Acetophenone	1.854	1.882	1.716	1.660	1.603	1.665	1.847	1.693	1.740	6.07
19) 2-Methylphen	1.179	1.223	1.115	1.000	0.977	1.037	1.158	1.137	1.103	8.06
20) 2,2'-oxybis(	0.444	0.430	0.383	0.338	0.337	0.351	0.442	0.390	0.389	11.65
21) 3&4-Methylph	1.182	1.305	1.163	1.079	1.041	1.100	1.252	1.195	1.165	7.63
22) n-Nitroso-di	1.022	1.013	0.884	0.767	0.748	0.805	1.000	0.907	0.893	12.51
23) Hexachloroet	0.550	0.563	0.517	0.505	0.503	0.512	0.532	0.521	0.525	4.13
-----										
24) I Naphthalene-d8	-----ISTD-----									
25) Nitrobenzene	0.366	0.362	0.345	0.333	0.334	0.333	0.371	0.339	0.348	4.61
26) Nitrobenzene	0.387	0.375	0.347	0.328	0.323	0.331	0.367	0.347	0.351	6.71
27) Quinoline	0.752	0.756	0.716	0.717	0.703	0.715	0.781	0.703	0.730	3.94
28) Isophorone	0.651	0.686	0.649	0.646	0.630	0.652	0.656	0.623	0.649	2.91
29) 2-Nitropheno	0.184	0.187	0.196	0.204	0.198	0.200	0.170	0.173	0.189	6.69
30) 2,4-Dimethyl	0.341	0.345	0.333	0.317	0.311	0.321	0.337	0.318	0.328	3.82
31) Benzoic acid	0.116	0.191	0.264	0.242	0.229		0.125	0.195		31.92
-----										
---- Quadratic regression ----										
Response Ratio = -0.03236 + 0.26697 *A + -0.00182 *A^2										
-----										
32) bis(2-Chloro	0.433	0.442	0.408	0.401	0.387	0.398	0.420	0.414	0.413	4.45
33) 2,4-Dichloro	0.270	0.313	0.304	0.297	0.286	0.294	0.284	0.297	0.293	4.46
34) 2,6-Dichloro	0.280	0.296	0.282	0.271	0.261	0.270	0.294	0.276	0.279	4.23
35) 1,3,5-Trichl	0.370	0.384	0.359	0.334	0.327	0.340	0.386	0.360	0.357	6.24
36) 1,2,4-Trichl	0.346	0.370	0.331	0.330	0.317	0.325	0.363	0.336	0.340	5.49
37) 1,2,3-Trichl	0.340	0.344	0.311	0.292	0.284	0.298	0.350	0.314	0.317	8.01
38) Naphthalene	0.999	1.002	0.922	0.775	0.781	0.865	1.013	0.945	0.913	10.58
39) 4-Chloroanil	0.408	0.464	0.432	0.421	0.411	0.420	0.385	0.427	0.421	5.35
40) 2,3-Dichloro	0.408	0.420	0.368	0.373	0.360	0.369	0.425	0.378	0.388	6.66
41) Caprolactam	0.108	0.107	0.102	0.109	0.105	0.105	0.089	0.100	0.103	6.14
42) Hexachlorobu	0.184	0.193	0.177	0.175	0.170	0.175	0.175	0.175	0.178	4.04

87.1  
8

# Initial Calibration Summary

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2153-ICC2153  
Lab FileID: 2P50237.D

43)	4-Chloro-3-m	0.313	0.295	0.298	0.301	0.293	0.299	0.290	0.284	0.297	2.87
44)	2-Methylnaph	0.581	0.600	0.563	0.542	0.525	0.541	0.573	0.552	0.560	4.39
45)	1-Methylnaph	0.641	0.653	0.598	0.563	0.553	0.581	0.658	0.600	0.606	6.72
46)	Dimethylnaph	0.647	0.643	0.571	0.552	0.538	0.566	0.682	0.580	0.597	8.78
47)	I Acenaphthene-d10	-----ISTD-----									
48)	Hexachlorocy	0.244	0.269	0.309	0.341	0.337	0.337	0.214	0.273	0.290	16.47
49)	2,4,6-Trichl	0.324	0.328	0.335	0.328	0.329	0.323	0.327	0.325	0.327	1.15
50)	2,4,5-Trichl	0.370	0.406	0.384	0.377	0.383	0.379	0.398	0.399	0.387	3.24
51)	2-Fluorobiph	1.329	1.264	1.113	1.042	1.036	1.047	1.476	1.180	1.186	13.48
52)	2-Chloronaph	1.149	1.218	1.042	0.937	0.950	0.968	1.174	1.135	1.072	10.37
53)	Biphenyl	1.447	1.519	1.334	1.152	1.184	1.315	1.568	1.439	1.370	10.99
54)	2-Nitroanili	0.344	0.317	0.330	0.330	0.338	0.332	0.324	0.302	0.327	4.02
55)	Dimethylphth	1.321	1.423	1.278	1.274	1.259	1.281	1.435	1.346	1.327	5.19
56)	Acenaphthyle	1.956	2.010	1.741	1.383	1.423	1.622	2.183	1.814	1.766	15.98
57)	2,6-Dinitrot	0.223	0.248	0.255	0.264	0.268	0.260	0.221	0.246	0.248	7.27
58)	3-Nitroanili	0.278	0.306	0.310	0.321	0.325	0.318	0.267	0.295	0.303	6.89
59)	Acenaphthene	1.104	1.089	0.972	0.959	0.964	0.961	1.234	1.037	1.040	9.42
60)	2,4-Dinitrop	0.034	0.049	0.098	0.150	0.151	0.134		0.059	0.096	51.70
	----- Quadratic regression -----										Coefficient = 0.9980
	Response Ratio =	-0.02330 + 0.12356 *A + 0.00694 *A^2									
61)	4-Nitropheno	0.122	0.135	0.133	0.169	0.172	0.165	0.093	0.130	0.140	19.45
62)	Dibenzofuran	1.499	1.527	1.386	1.180	1.241	1.302	1.489	1.472	1.387	9.47
63)	2,4-Dinitrot	0.272	0.320	0.341	0.361	0.360	0.361	0.231	0.316	0.320	14.73
64)	2,3,4,6-Tetr	0.236	0.263	0.278	0.312	0.308	0.298	0.232	0.260	0.273	11.34
65)	Diethylphtha	1.389	1.434	1.327	1.274	1.290	1.304	1.439	1.363	1.352	4.74
66)	Fluorene	1.358	1.324	1.157	1.058	1.069	1.098	1.538	1.211	1.227	13.74
67)	4-Chlorophen	0.595	0.646	0.578	0.571	0.566	0.572	0.617	0.608	0.594	4.71
68)	4-Nitroanili	0.290	0.320	0.296	0.301	0.303	0.299	0.260	0.314	0.298	6.06
69)	I Phenanthrene-d10	-----ISTD-----									
70)	4,6-Dinitro-	0.053	0.066	0.102	0.125	0.123	0.118		0.074	0.094	31.27
	----- Quadratic regression -----										Coefficient = 0.9989
	Response Ratio =	-0.00786 + 0.12015 *A + 0.00283 *A^2									
71)	n-Nitrosodip	0.575	0.597	0.540	0.531	0.521	0.535	0.569	0.561	0.554	4.69
72)	1,2-Diphenyl	0.832	0.845	0.770	0.672	0.678	0.712	0.821	0.772	0.763	9.03
73)	2,4,6-Tribr	0.110	0.095	0.093	0.099	0.098	0.097	0.121	0.088	0.100	10.62
74)	4-Bromopheny	0.223	0.223	0.220	0.225	0.222	0.220	0.222	0.210	0.221	2.18
75)	Hexachlorobe	0.225	0.238	0.214	0.220	0.216	0.216	0.233	0.215	0.222	4.09
76)	Pentachlorop	0.022	0.069	0.109	0.135	0.132	0.127		0.071	0.095	44.36
	----- Quadratic regression -----										Coefficient = 0.9987
	Response Ratio =	-0.02034 + 0.13191 *A + 0.00124 *A^2									
77)	Phenanthrene	1.162	1.103	0.984	0.916	0.971	0.964	1.336	1.018	1.057	13.08
78)	Anthracene	1.248	1.154	1.044	0.928	0.935	0.996	1.358	1.053	1.089	14.04
79)	Carbazole	1.178	1.152	1.065	1.009	1.003	1.049	1.227	1.083	1.096	7.46
80)	Di-n-butylph	1.539	1.607	1.546	1.197	1.278	1.492	1.485	1.501	1.456	9.75
81)	Fluoranthene	1.317	1.312	1.172	1.154	1.153	1.204	1.502	1.187	1.250	9.69
82)	Octadecane	0.501	0.457	0.432	0.350	0.360	0.391	0.506	0.428	0.428	13.77
83)	I Chrysene-d12	-----ISTD-----									
84)	Pyrene	1.495	1.380	1.260	1.231	1.237	1.241	1.678	1.250	1.346	12.11
85)	Terphenyl-d1	0.862	0.719	0.658	0.719	0.703	0.679	1.031	0.639	0.751	17.55
86)	Butylbenzylp	0.704	0.701	0.736	0.789	0.769	0.777	0.644	0.681	0.725	7.05
87)	Butyl steara	0.476	0.431	0.473	0.453	0.456	0.471	0.390	0.414	0.446	7.00
88)	Benzo[a]anth	1.326	1.235	1.137	1.172	1.152	1.147	1.517	1.091	1.222	11.37
89)	3,3'-Dichlor	0.392	0.405	0.420	0.444	0.434	0.433	0.401	0.384	0.414	5.30
90)	Chrysene	1.078	1.002	0.946	0.967	0.960	0.951	1.213	0.936	1.007	9.45

# Initial Calibration Summary

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2153-ICC2153  
Lab FileID: 2P50237.D

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91) bis(2-Ethylh	0.960	0.867	0.924	0.945	0.953	0.960	0.836	0.845	0.911	5.85
92) I Perylene-d12	-----ISTD-----									
93) Di-n-octylph	1.790	1.668	1.808	1.483	1.584	1.861	1.633	1.583	1.676	7.84
94) Benzo[b]fluo	1.245	1.319	1.193	1.120	1.126	1.151	1.490	1.151	1.224	10.36
95) Benzo[k]fluo	1.182	1.132	0.976	0.793	0.800	0.964	1.405	1.000	1.032	19.78
96) Benzo[a]pyre	1.096	1.104	1.022	0.934	0.931	1.030	1.315	0.978	1.051	11.89
97) Indeno[1,2,3	1.001	1.001	0.942	0.912	0.868	0.973	1.183	0.900	0.972	10.02
98) Dibenz(a,h)a	0.846	0.903	0.856	0.818	0.801	0.886	0.904	0.819	0.854	4.70
99) Dibenz[a,h)a	0.979	0.999	0.909	0.815	0.814	0.891	1.148	0.892	0.931	11.81
100) 7,12-Dimethy	0.539	0.567	0.536	0.488	0.493	0.532	0.575	0.506	0.529	6.06
101) Benzo[g,h,i]	1.017	1.041	0.929	0.863	0.863	0.950	1.160	0.908	0.966	10.51

-----  
(#) = Out of Range ### Number of calibration levels exceeded format ###

M2P2153.M

Mon Jul 06 07:25:37 2015

RPT1

8.7.1

8

# Initial Calibration Verification

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2154-ICV2153  
Lab FileID: 2P50251.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2P2154\2p50251.D Vial: 19  
Acq On : 2 Jul 2015 5:53 pm Operator: samtap  
Sample : icv2153-50 Inst : MS2P  
Misc : op85151,e2p2154 Multiplr: 1.00  
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)  
Title : Semi Volatile Extractables by GC/MS  
Last Update : Thu Jul 02 17:43:45 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	94	0.00	4.71
3 t	Pyridine	1.479	1.584	-7.1	103	0.07	2.42
10	Aniline	1.903	1.910	-0.4	100	0.00	4.44
16 t	Benzyl alcohol	0.755	0.751	0.5	93	0.00	4.83
24 I	Naphthalene-d8	1.000	1.000	0.0	98	0.00	5.76
39 t	4-Chloroaniline	0.421	0.395	6.2	92	0.00	5.82
44 t	2-Methylnaphthalene	0.560	0.504	10.0	91	0.00	6.35
47 I	Acenaphthene-d10	1.000	1.000	0.0	88	0.00	7.20
54 t	2-Nitroaniline	0.327	0.322	1.5	86	0.00	6.83
58 t	3-Nitroaniline	0.303	0.318	-5.0	88	0.00	7.16
62 t	Dibenzofuran	1.387	1.412	-1.8	96	0.00	7.37
68 t	4-Nitroaniline	0.298	0.305	-2.3	90	-0.01	7.67
69 I	Phenanthrene-d10	1.000	1.000	0.0	95	0.00	8.50
79 t	Carbazole	1.096	0.957	12.7	86	0.00	8.74
83 I	Chrysene-d12	1.000	1.000	0.0	95	-0.01	11.78
92 I	Perylene-d12	1.000	1.000	0.0	88	0.00	13.79

(#) = Out of Range SPCC's out = 0 CCC's out = 0  
2p50246a.D M2P2153.M Mon Jul 06 08:05:37 2015 RPT1

# Initial Calibration Verification

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2154-ICV2153  
Lab FileID: 2P50252.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2P2154\2p50252.D Vial: 20  
Acq On : 2 Jul 2015 6:14 pm Operator: samtap  
Sample : icv2153-50 Inst : MS2P  
Misc : op85151,e2p2154 Multiplr: 1.00  
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)  
Title : Semi Volatile Extractables by GC/MS  
Last Update : Thu Jul 02 17:43:45 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	76	0.00	4.70
4 t	N-Nitrosodimethylamine	0.917	0.802	12.5	67	-0.02	2.30
11 t	bis(2-Chloroethyl)ether	1.237	1.198	3.2	78	0.00	4.49
14 t	1,3-Dichlorobenzene	1.558	1.545	0.8	80	0.00	4.66
15 t	1,4-Dichlorobenzene	1.481	1.395	5.8	76	0.00	4.72
17 t	1,2-Dichlorobenzene	1.402	1.402	0.0	84	0.00	4.85
20 t	2,2'-oxybis(1-Chloropropa	0.389	0.352	9.5	76	0.00	4.94
22 t	n-Nitroso-di-n-propylamin	0.893	0.767	14.1	72	0.00	5.05
23 t	Hexachloroethane	0.525	0.506	3.6	75	0.00	5.13
24 I	Naphthalene-d8	1.000	1.000	0.0	72	0.00	5.76
26 t	Nitrobenzene	0.351	0.326	7.1	71	0.00	5.18
28 t	Isophorone	0.649	0.649	0.0	71	0.00	5.38
32 t	bis(2-Chloroethoxy)methan	0.413	0.391	5.3	70	0.00	5.56
36 t	1,2,4-Trichlorobenzene	0.340	0.335	1.5	74	0.00	5.71
38 t	Naphthalene	0.913	0.894	2.1	74	0.00	5.77
42 t	Hexachlorobutadiene	0.178	0.177	0.6	73	0.00	5.89
47 I	Acenaphthene-d10	1.000	1.000	0.0	69	0.00	7.20
48 t	Hexachlorocyclopentadiene	0.290	0.282	2.8	58	0.00	6.48
52 t	2-Chloronaphthalene	1.072	1.113	-3.8	79	0.00	6.74
55 t	Dimethylphthalate	1.327	1.202	9.4	64	0.00	6.98
56 t	Acenaphthylene	1.766	1.505	14.8	64	0.00	7.08
57 t	2,6-Dinitrotoluene	0.248	0.228	8.1	60	0.00	7.02
59 t	Acenaphthene	1.040	1.004	3.5	72	0.00	7.23
63 t	2,4-Dinitrotoluene	0.320	0.280	12.5	53	0.00	7.36
65 t	Diethylphthalate	1.352	1.177	12.9	62	0.00	7.56
66 t	Fluorene	1.227	1.105	9.9	69	0.00	7.65
67 t	4-Chlorophenyl-phenylethe	0.594	0.494	16.8	59	0.00	7.65
69 I	Phenanthrene-d10	1.000	1.000	0.0	72	0.00	8.50
71 t	n-Nitrosodiphenylamine	0.554	0.463	16.4	62	0.00	7.75
72 t	1,2-Diphenylhydrazine	0.763	0.654	14.3	66	0.00	7.78
74 t	4-Bromophenyl-phenylether	0.221	0.183	17.2	60	0.00	8.08
75 t	Hexachlorobenzene	0.222	0.194	12.6	65	0.00	8.14
77 t	Phenanthrene	1.057	0.928	12.2	69	0.00	8.52
78 t	Anthracene	1.089	0.931	14.5	67	0.00	8.57
80 t	Di-n-butylphthalate	1.456	1.274	12.5	61	0.00	9.13
81 t	Fluoranthene	1.250	1.113	11.0	66	0.00	9.84
83 I	Chrysene-d12	1.000	1.000	0.0	66	0.00	11.79
84 t	Pyrene	1.346	1.263	6.2	67	0.00	10.12
86 t	Butylbenzylphthalate	0.725	0.660	9.0	56	0.00	11.05
88 t	Benzo[a]anthracene	1.222	1.123	8.1	65	0.00	11.77
90 t	Chrysene	1.007	0.981	2.6	68	-0.01	11.82
91 t	bis(2-Ethylhexyl)phthalat	0.911	0.798	12.4	55	0.00	11.93

# Initial Calibration Verification

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2154-ICV2153  
Lab FileID: 2P50252.D

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92	I	Perylene-d12	1.000	1.000	0.0	64	-0.01	13.78
93	t	Di-n-octylphthalate	1.676	1.615	3.6	55	0.00	12.87
94	t	Benzo[b]fluoranthene	1.224	1.132	7.5	63	0.00	13.28
95	t	Benzo[k]fluoranthene	1.032	1.057	-2.4	70	-0.01	13.32
96	t	Benzo[a]pyrene	1.051	1.118	-6.4	69	-0.01	13.70
97	t	Indeno[1,2,3-cd]pyrene	0.972	1.015	-4.4	67	-0.01	15.19
99	t	Dibenz[a,h]anthracene	0.931	0.951	-2.1	68	-0.01	15.22
101	t	Benzo[g,h,i]perylene	0.966	1.044	-8.1	70	-0.01	15.58

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(#) = Out of Range  
2p50246a.D M2P2153.M

SPCC's out = 0 CCC's out = 0  
Mon Jul 06 08:11:21 2015 RPT1

8.7.3

8

# Initial Calibration Verification

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2154-ICV2153  
Lab FileID: 2P50254.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2P2154\2p50254.D Vial: 22  
Acq On : 2 Jul 2015 6:56 pm Operator: samtap  
Sample : icv2153-50 Inst : MS2P  
Misc : op85151,e2p2154 Multiplr: 1.00  
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)  
Title : Semi Volatile Extractables by GC/MS  
Last Update : Thu Jul 02 17:43:45 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	99	0.00	4.70
5 S	2-Fluorophenol	1.428	1.328	7.0	91	0.00	3.61
8 S	Phenol-d5	1.641	1.491	9.1	87	0.00	4.42
24 I	Naphthalene-d8	1.000	1.000	0.0	98	0.00	5.76
25 S	Nitrobenzene-d5	0.348	0.353	-1.4	104	0.00	5.16
47 I	Acenaphthene-d10	1.000	1.000	0.0	92	0.00	7.20
51 S	2-Fluorobiphenyl	1.186	1.245	-5.0	109	0.00	6.65
69 I	Phenanthrene-d10	1.000	1.000	0.0	95	0.00	8.50
73 S	2,4,6-Tribromophenol	0.100	0.082	18.0	80	0.00	7.86
83 I	Chrysene-d12	1.000	1.000	0.0	103	-0.01	11.78
85 S	Terphenyl-d14	0.751	0.734	2.3	112	0.00	10.35
92 I	Perylene-d12	1.000	1.000	0.0	100	-0.01	13.78

(#) = Out of Range SPCC's out = 0 CCC's out = 0  
2p50246a.D M2P2153.M Mon Jul 06 08:22:28 2015 RPT1

8.7.4  
8

# Initial Calibration Verification

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2154-ICV2153  
Lab FileID: 2P50256.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2P2154\2p50256.D Vial: 24  
Acq On : 2 Jul 2015 7:38 pm Operator: samtap  
Sample : icv2153-50 Inst : MS2P  
Misc : op85151,e2p2154 Multiplr: 1.00  
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)  
Title : Semi Volatile Extractables by GC/MS  
Last Update : Thu Jul 02 17:43:45 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
83 I Chrysene-d12	1.000	1.000	0.0	96	-0.01	11.78
89 t 3,3'-Dichlorobenzidine	0.414	0.432	-4.3	96	0.00	11.77

(#) = Out of Range SPCC's out = 0 CCC's out = 0  
2p50246a.D M2P2153.M Mon Jul 06 08:27:01 2015 RPT1

8.7.5  
8

# Initial Calibration Verification

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2156-ICV2153  
Lab FileID: 2P50261.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2P2156\2p50261.D Vial: 2  
Acq On : 6 Jul 2015 7:39 am Operator: samtap  
Sample : icv2153-50 Inst : MS2P  
Misc : op85151,e2p2156 Multiplr: 1.00  
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)  
Title : Semi Volatile Extractables by GC/MS  
Last Update : Thu Jul 02 17:43:45 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	113	-0.03	4.68
2 t	1,4-Dioxane	0.600	0.530	11.7	106	-0.03	1.99
6 t	Indene	2.253	1.960	13.0	103	-0.03	4.90
7 t	Cumene	3.147	2.639	16.1	96	-0.03	4.02
13 t	Decane	1.750	1.428	18.4	100	-0.03	4.56
18 t	Acetophenone	1.740	1.537	11.7	105	-0.03	5.01
24 I	Naphthalene-d8	1.000	1.000	0.0	112	-0.03	5.73
27 t	Quinoline	0.730	0.629	13.8	99	-0.03	6.02
40 t	2,3-Dichloroaniline	0.388	0.308	20.6	94	-0.03	6.55
41 t	Caprolactam	0.103	0.091	11.7	97	-0.06	6.07
45 t	1-Methylnaphthalene	0.606	0.523	13.7	101	-0.03	6.40
46 t	Dimethylnaphthalene	0.597	0.521	12.7	103	-0.03	6.83
47 I	Acenaphthene-d10	1.000	1.000	0.0	108	-0.03	7.17
53 t	Biphenyl	1.370	1.237	9.7	102	-0.03	6.70
69 I	Phenanthrene-d10	1.000	1.000	0.0	103	-0.04	8.46
82 t	Octadecane	0.428	0.332	22.4	88	-0.03	8.38
83 I	Chrysene-d12	1.000	1.000	0.0	112	-0.05	11.74
92 I	Perylene-d12	1.000	1.000	0.0	102	-0.05	13.74
100 t	7,12-Dimethylbenz(a)anthr	0.529	0.423	20.0	81	-0.06	13.24

(#) = Out of Range SPCC's out = 0 CCC's out = 0  
2p50246a.D M2P2153.M Mon Jul 06 09:19:35 2015 RPT1

# Initial Calibration Verification

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2156-ICV2153  
Lab FileID: 2P50262.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2P2156\2p50262.D Vial: 3  
Acq On : 6 Jul 2015 8:05 am Operator: samtap  
Sample : icv2153-50 Inst : MS2P  
Misc : op85151,e2p2156 Multiplr: 1.00  
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)  
Title : Semi Volatile Extractables by GC/MS  
Last Update : Thu Jul 02 17:43:45 2015  
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	81	-0.03	4.68
9 t	Phenol	1.728	1.541	10.8	75	-0.03	4.40
12 t	2-Chlorophenol	1.329	1.325	0.3	87	-0.03	4.51
19 t	2-Methylphenol	1.103	1.135	-2.9	89	-0.03	4.90
21 t	3&4-Methylphenol	1.165	1.178	-1.1	87	-0.03	5.03
24 I	Naphthalene-d8	1.000	1.000	0.0	83	-0.03	5.73
29 t	2-Nitrophenol	0.189	0.189	0.0	78	-0.03	5.42
30 t	2,4-Dimethylphenol	0.328	0.311	5.2	80	-0.03	5.47
31 t	Benzoic acid	50.000	36.060	27.9	60	-0.03	5.56
33 t	2,4-Dichlorophenol	0.293	0.283	3.4	79	-0.03	5.62
34 t	2,6-Dichlorophenol	0.279	0.284	-1.8	87	-0.03	5.80
43 t	4-Chloro-3-methylphenol	0.297	0.280	5.7	77	-0.04	6.20
47 I	Acenaphthene-d10	1.000	1.000	0.0	89	-0.03	7.17
49 t	2,4,6-Trichlorophenol	0.327	0.322	1.5	89	-0.03	6.55
50 t	2,4,5-Trichlorophenol	0.387	0.337	12.9	79	-0.03	6.59
	----- True Calc. % Drift -----						
60 t	2,4-Dinitrophenol	50.000	48.344	3.3	72	-0.03	7.22
	----- AvgRF CCRF % Dev -----						
61 t	4-Nitrophenol	0.140	0.151	-7.9	81	-0.03	7.29
64	2,3,4,6-Tetrachlorophenol	0.273	0.259	5.1	77	-0.03	7.45
69 I	Phenanthrene-d10	1.000	1.000	0.0	91	-0.04	8.46
	----- True Calc. % Drift -----						
70 t	4,6-Dinitro-2-methylpheno	50.000	44.910	10.2	81	-0.04	7.67
	----- True Calc. % Drift -----						
76 t	Pentachlorophenol	50.000	45.918	8.2	76	-0.04	8.29
83 I	Chrysene-d12	1.000	1.000	0.0	106	-0.05	11.74
92 I	Perylene-d12	1.000	1.000	0.0	98	-0.05	13.74

(#) = Out of Range  
2p50246a.D M2P2153.M

SPCC's out = 0 CCC's out = 0  
Mon Jul 06 09:26:50 2015 RPT1

# Continuing Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2191-CC2153  
 Lab FileID: 2P51005.D

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\2P2191\2p51005.D Vial: 2  
 Acq On : 29 Jul 2015 4:45 pm Operator: ashleyd  
 Sample : cc2153-25 Inst : MS2P  
 Misc : op85840,e2p2191 Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M2P2153.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Tue Jul 28 11:13:29 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	118	0.00	4.56
2 t	1,4-Dioxane	0.600	0.383	36.2#	80	0.00	1.84
3 t	Pyridine	1.479	0.994	32.8#	80	0.01	2.18
4 t	N-Nitrosodimethylamine	0.917	0.635	30.8#	81	0.00	2.15
5 S	2-Fluorophenol	1.428	1.165	18.4	94	0.00	3.52
6 t	Indene	2.253	2.101	6.7	109	0.00	4.77
7 t	Cumene	3.147	3.064	2.6	112	0.00	3.88
8 S	Phenol-d5	1.641	1.408	14.2	98	0.00	4.33
9 t	Phenol	1.728	1.427	17.4	94	0.00	4.34
10	Aniline	1.903	1.415	25.6#	87	0.00	4.30
11 t	bis(2-Chloroethyl)ether	1.237	1.149	7.1	110	0.00	4.34
12 t	2-Chlorophenol	1.329	1.153	13.2	102	0.00	4.41
13 t	Decane	1.750	1.627	7.0	108	0.00	4.44
14 t	1,3-Dichlorobenzene	1.558	1.452	6.8	111	0.00	4.51
15 t	1,4-Dichlorobenzene	1.481	1.350	8.8	109	0.00	4.57
16 t	Benzyl alcohol	0.755	0.668	11.5	101	0.00	4.70
17 t	1,2-Dichlorobenzene	1.402	1.319	5.9	112	0.00	4.70
18 t	Acetophenone	1.740	1.720	1.1	118	0.00	4.90
19 t	2-Methylphenol	1.103	0.971	12.0	103	-0.01	4.83
20 t	2,2'-oxybis(1-Chloropropa	0.389	0.364	6.4	112	0.00	4.79
21 t	3&4-Methylphenol	1.165	1.092	6.3	111	0.00	4.95
22 t	n-Nitroso-di-n-propylamin	0.893	0.927	-3.8	123	-0.01	4.91
23 t	Hexachloroethane	0.525	0.606	-15.4	138	0.00	4.98
24 I	Naphthalene-d8	1.000	1.000	0.0	110	0.00	5.61
25 S	Nitrobenzene-d5	0.348	0.373	-7.2	119	0.00	5.02
26 t	Nitrobenzene	0.351	0.379	-8.0	120	0.00	5.04
27 t	Quinoline	0.730	0.711	2.6	110	0.00	5.91
28 t	Isophorone	0.649	0.653	-0.6	111	0.00	5.23
29 t	2-Nitrophenol	0.189	0.217	-14.8	122	0.00	5.30
30 t	2,4-Dimethylphenol	0.328	0.311	5.2	103	0.00	5.37
----- True Calc. % Drift -----							
31 t	Benzoic acid	25.000	30.418	-21.7#	157	-0.03	5.50
----- AvgRF CCRF % Dev -----							
32 t	bis(2-Chloroethoxy)methan	0.413	0.414	-0.2	112	0.00	5.42
33 t	2,4-Dichlorophenol	0.293	0.326	-11.3	118	0.00	5.53
34 t	2,6-Dichlorophenol	0.279	0.310	-11.1	121	0.00	5.70
35	1,3,5-Trichlorobenzene	0.357	0.425	-19.0	131	0.00	5.31
36 t	1,2,4-Trichlorobenzene	0.340	0.393	-15.6	131	0.00	5.57
37	1,2,3-Trichlorobenzene	0.317	0.372	-17.4	132	0.00	5.75

8.7.8  
8

# Continuing Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2191-CC2153  
 Lab FileID: 2P51005.D

38 t	Naphthalene	0.913	0.913	0.0	109	0.00	5.63
39 t	4-Chloroaniline	0.421	0.398	5.5	102	0.00	5.69
40 t	2,3-Dichloroaniline	0.388	0.410	-5.7	123	0.00	6.44
41 t	Caprolactam	0.103	0.105	-1.9	114	-0.03	5.98
42 t	Hexachlorobutadiene	0.178	0.257	-44.4#	161	0.00	5.74
43 t	4-Chloro-3-methylphenol	0.297	0.325	-9.4	120	0.00	6.13
44 t	2-Methylnaphthalene	0.560	0.607	-8.4	119	0.00	6.20
45 t	1-Methylnaphthalene	0.606	0.646	-6.6	119	0.00	6.28
46 t	Dimethylnaphthalene	0.597	0.661	-10.7	128	0.00	6.71
47 I	Acenaphthene-d10	1.000	1.000	0.0	121	0.00	7.06
48 t	Hexachlorocyclopentadiene	0.290	0.291	-0.3	114	0.00	6.33
49 t	2,4,6-Trichlorophenol	0.327	0.417	-27.5#	150	0.00	6.46
50 t	2,4,5-Trichlorophenol	0.387	0.448	-15.8	141	0.00	6.51
51 S	2-Fluorobiphenyl	1.186	1.314	-10.8	142	0.00	6.50
52 t	2-Chloronaphthalene	1.072	1.071	0.1	124	0.00	6.60
53 t	Biphenyl	1.370	1.463	-6.8	132	0.00	6.58
54 t	2-Nitroaniline	0.327	0.402	-22.9#	147	0.00	6.70
55 t	Dimethylphthalate	1.327	1.440	-8.5	136	0.00	6.84
56 t	Acenaphthylene	1.766	1.779	-0.7	123	0.00	6.94
57 t	2,6-Dinitrotoluene	0.248	0.310	-25.0#	147	0.00	6.89
58 t	3-Nitroaniline	0.303	0.310	-2.3	120	0.00	7.04
59 t	Acenaphthene	1.040	1.041	-0.1	129	0.00	7.08
----- True Calc. % Drift -----							
60 t	2,4-Dinitrophenol	50.000	76.680	-53.4#	235	0.00	7.13
----- AvgRF CCRF % Dev -----							
61 t	4-Nitrophenol	0.140	0.159	-13.6	144	0.00	7.25
62 t	Dibenzofuran	1.387	1.595	-15.0	139	0.00	7.22
63 t	2,4-Dinitrotoluene	0.320	0.416	-30.0#	147	0.00	7.23
64	2,3,4,6-Tetrachlorophenol	0.273	0.376	-37.7#	163	0.00	7.35
65 t	Diethylphthalate	1.352	1.432	-5.9	130	0.00	7.41
66 t	Fluorene	1.227	1.280	-4.3	133	0.00	7.51
67 t	4-Chlorophenyl-phenylethe	0.594	0.775	-30.5#	162	0.00	7.50
68 t	4-Nitroaniline	0.298	0.285	4.4	116	0.00	7.54
69 I	Phenanthrene-d10	1.000	1.000	0.0	149	0.00	8.33
----- True Calc. % Drift -----							
70 t	4,6-Dinitro-2-methylpheno	25.000	31.856	-27.4#	209	0.00	7.57
----- AvgRF CCRF % Dev -----							
71 t	n-Nitrosodiphenylamine	0.554	0.504	9.0	139	0.00	7.61
72 t	1,2-Diphenylhydrazine	0.763	0.625	18.1	121	0.00	7.63
73 S	2,4,6-Tribromophenol	0.100	0.114	-14.0	183	0.00	7.71
74 t	4-Bromophenyl-phenylether	0.221	0.258	-16.7	175	0.00	7.92
75 t	Hexachlorobenzene	0.222	0.251	-13.1	175	0.00	7.99
----- True Calc. % Drift -----							
76 t	Pentachlorophenol	50.000	58.044	-16.1	190	0.00	8.18
----- AvgRF CCRF % Dev -----							
77 t	Phenanthrene	1.057	0.941	11.0	142	0.00	8.36
78 t	Anthracene	1.089	0.977	10.3	139	0.00	8.40
79 t	Carbazole	1.096	0.984	10.2	138	0.00	8.58
80 t	Di-n-butylphthalate	1.456	1.354	7.0	130	0.01	8.95
81 t	Fluoranthene	1.250	1.261	-0.9	160	0.01	9.66
82 t	Octadecane	0.428	0.453	-5.8	156	0.00	8.24

87.8

8

# Continuing Calibration Summary

Job Number: JB99970  
 Account: SECORPAE Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

Sample: E2P2191-CC2153  
 Lab FileID: 2P51005.D

83	I	Chrysene-d12	1.000	1.000	0.0	171	0.02	11.60
84	t	Pyrene	1.346	1.199	10.9	163	0.01	9.93
85	S	Terphenyl-d14	0.751	0.774	-3.1	201#	0.01	10.15
86	t	Butylbenzylphthalate	0.725	0.568	21.7#	132	0.02	10.85
87		Butyl stearate	0.446	0.352	21.1#	127	0.02	10.99
88	t	Benzo[a]anthracene	1.222	1.145	6.3	172	0.02	11.58
89	t	3,3'-Dichlorobenzidine	0.414	0.428	-3.4	174	0.01	11.58
90	t	Chrysene	1.007	0.966	4.1	174	0.01	11.63
91	t	bis(2-Ethylhexyl)phthalat	0.911	0.749	17.8	138	0.02	11.72
92	I	Perylene-d12	1.000	1.000	0.0	156	0.02	13.59
93	t	Di-n-octylphthalate	1.676	1.504	10.3	130	0.02	12.65
94	t	Benzo[b]fluoranthene	1.224	1.197	2.2	156	0.02	13.10
95	t	Benzo[k]fluoranthene	1.032	1.050	-1.7	168	0.01	13.13
96	t	Benzo[a]pyrene	1.051	1.036	1.4	158	0.02	13.51
97	t	Indeno[1,2,3-cd]pyrene	0.972	0.969	0.3	160	0.02	14.96
98	t	Dibenz(a,h)acridine	0.854	0.841	1.5	153	0.02	14.65
99	t	Dibenz[a,h]anthracene	0.931	0.883	5.2	151	0.02	14.98
100	t	7,12-Dimethylbenz(a)anthr	0.529	0.549	-3.8	160	0.02	13.08
101	t	Benzo[g,h,i]perylene	0.966	0.874	9.5	147	0.02	15.33

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(#) = Out of Range  
 2p50733.D M2P2153.M

SPCC's out = 0 CCC's out = 0  
 Thu Jul 30 18:50:04 2015 RPT1

8.7.8  
 8

**GC/MS Semi-volatiles**

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**Raw Data**

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\  
 Data File : 2p51012.D  
 Acq On : 29 Jul 2015 7:41 pm  
 Operator : ashleyd  
 Sample : jb99970-1  
 Misc : op85890,e2p2191,30.9  
 ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 30 15:48:53 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Jul 28 11:13:30 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.558	152	1507946	40.00	ppm	0.00
24) Naphthalene-d8	5.612	136	5369065	40.00	ppm	0.00
47) Acenaphthene-d10	7.051	164	3232518	40.00	ppm	0.00
69) Phenanthrene-d10	8.329	188	5764958	40.00	ppm	0.00
83) Chrysene-d12	11.581	240	6197070	40.00	ppm	0.00
92) Perylene-d12	13.582	264	5480680	40.00	ppm	0.01
102) 1,4-Dichlorobenzene-d4a	4.558	152	1507946	40.00	ppm	0.00
104) Naphthalene-d8a	5.612	136	5369065	40.00	ppm	0.00
106) Acenaphthene-d10a	7.051	164	3232518	40.00	ppm	0.00
109) Chrysene-d12a	11.581	240	6196685	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.510	112	1559124	28.95	ppm	-0.01
Spiked Amount	50.000	Range 11 - 58	Recovery =	57.90%		
8) Phenol-d5	4.334	99	1929662	31.19	ppm	0.00
Spiked Amount	50.000	Range 10 - 59	Recovery =	62.38%#		
25) Nitrobenzene-d5	5.024	82	2162501	46.31	ppm	0.00
Spiked Amount	50.000	Range 19 - 61	Recovery =	92.62%#		
51) 2-Fluorobiphenyl	6.500	172	4760929	49.68	ppm	0.00
Spiked Amount	50.000	Range 21 - 58	Recovery =	99.36%#		
73) 2,4,6-Tribromophenol	7.714	330	690428	47.94	ppm	0.00
Spiked Amount	50.000	Range 12 - 68	Recovery =	95.88%#		
85) Terphenyl-d14	10.153	244	5609656	48.19	ppm	0.01
Spiked Amount	50.000	Range 16 - 65	Recovery =	96.38%#		

Target Compounds Qvalue

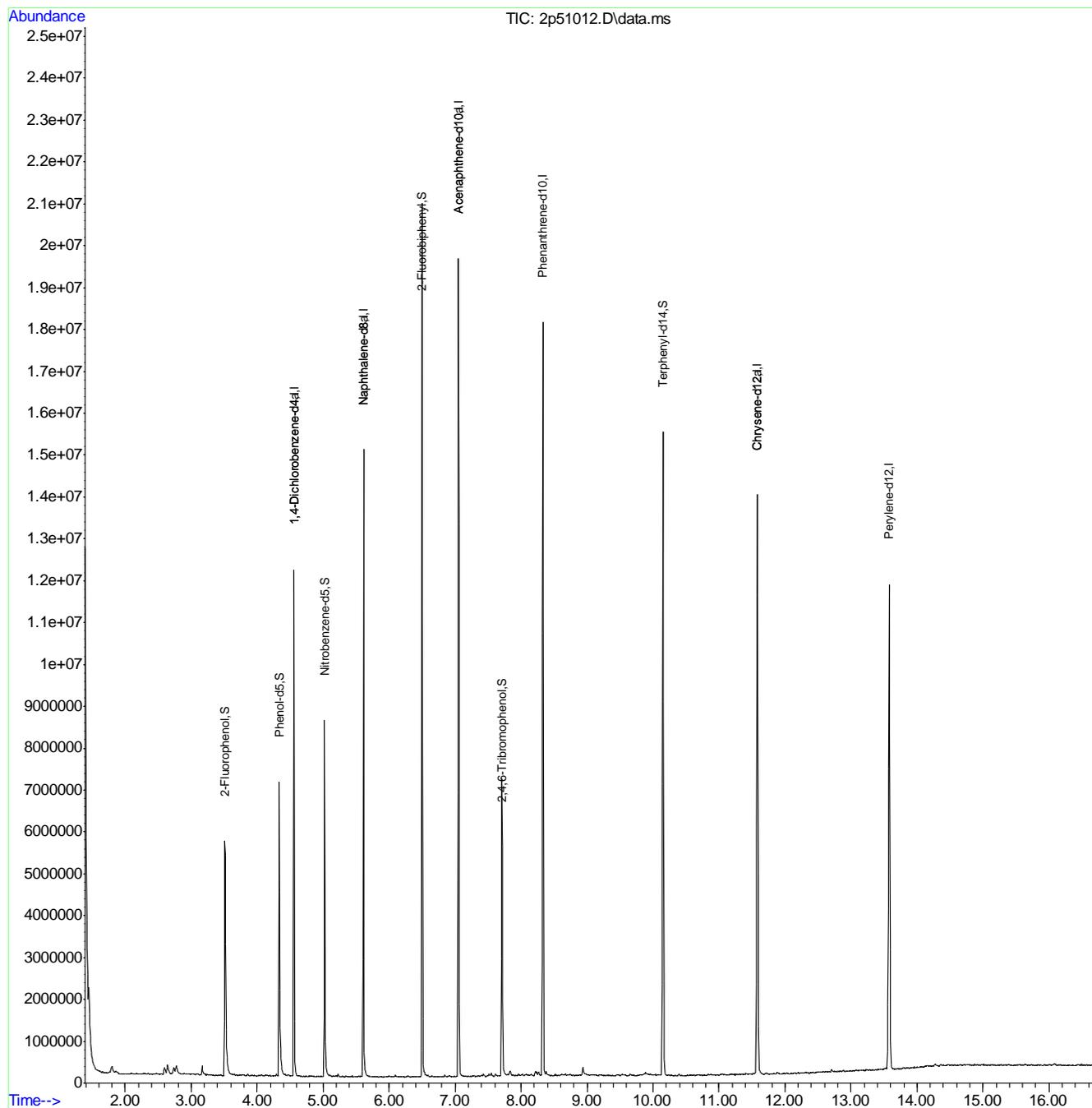
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.1.1  
9

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\  
Data File : 2p51012.D  
Acq On : 29 Jul 2015 7:41 pm  
Operator : ashleyd  
Sample : jb99970-1  
Misc : op85890,e2p2191,30.9  
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 30 15:48:53 2015  
Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M  
Quant Title : Semi Volatile Extractables by GC/MS  
QLast Update : Tue Jul 28 11:13:30 2015  
Response via : Initial Calibration



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\  
 Data File : 2p51013.D  
 Acq On : 29 Jul 2015 8:03 pm  
 Operator : ashleyd  
 Sample : jB99970-2  
 Misc : op85890,e2p2191,30.4  
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 30 15:51:53 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Jul 28 11:13:30 2015  
 Response via : Initial Calibration

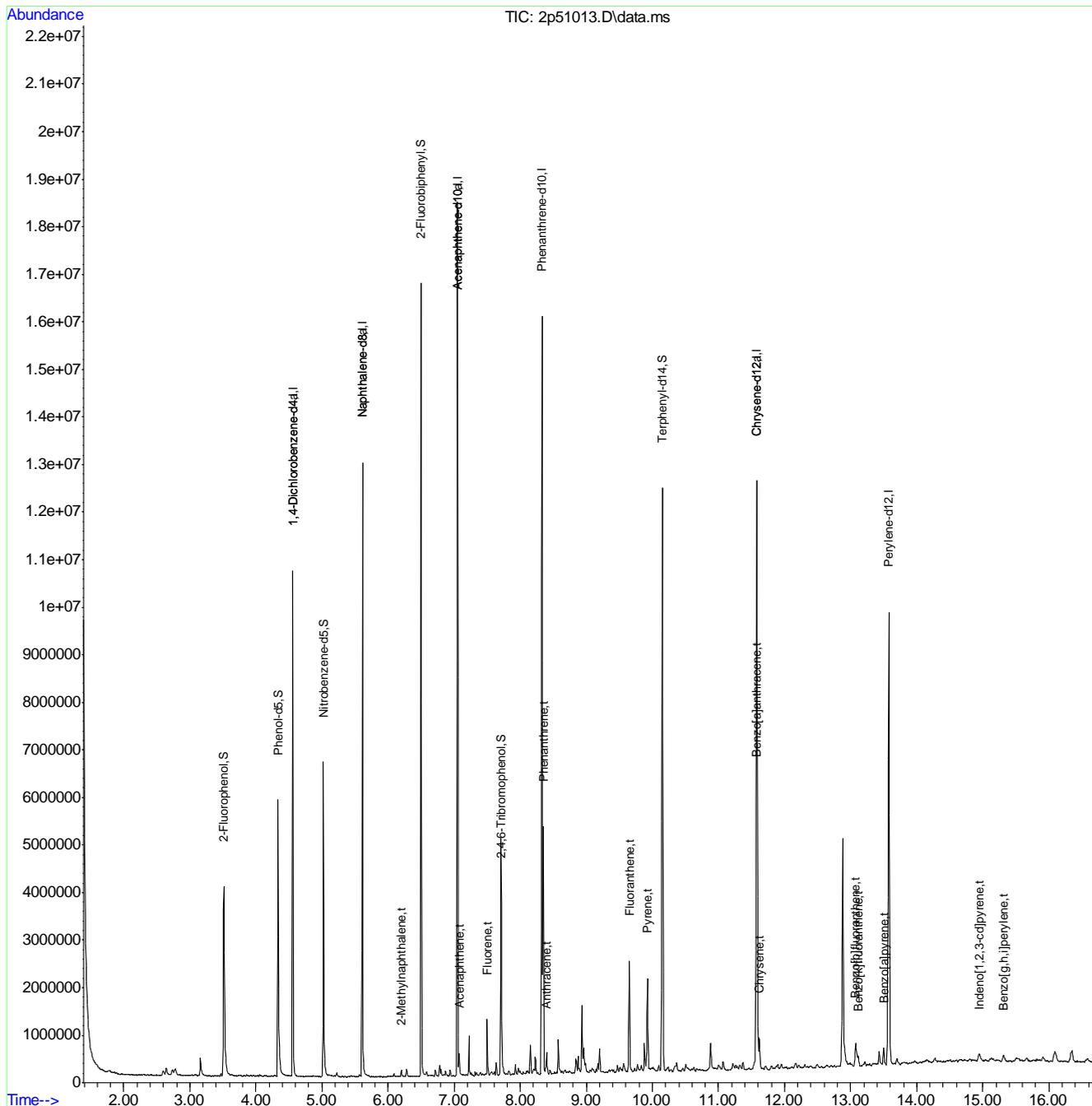
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.559	152	1336780	40.00	ppm	0.00
24) Naphthalene-d8	5.612	136	4667281	40.00	ppm	0.00
47) Acenaphthene-d10	7.051	164	2862541	40.00	ppm	0.00
69) Phenanthrene-d10	8.329	188	5097906	40.00	ppm	0.00
83) Chrysene-d12	11.581	240	5240175	40.00	ppm	0.00
92) Perylene-d12	13.582	264	4503314	40.00	ppm	0.01
102) 1,4-Dichlorobenzene-d4a	4.559	152	1336780	40.00	ppm	0.00
104) Naphthalene-d8a	5.612	136	4667281	40.00	ppm	0.00
106) Acenaphthene-d10a	7.051	164	2862541	40.00	ppm	0.00
109) Chrysene-d12a	11.581	240	5240953	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.516	112	1142431	23.93	ppm	0.00
Spiked Amount	50.000	Range 11 - 58	Recovery =	47.86%		
8) Phenol-d5	4.334	99	1589554	28.98	ppm	0.00
Spiked Amount	50.000	Range 10 - 59	Recovery =	57.96%		
25) Nitrobenzene-d5	5.024	82	1679825	41.38	ppm	0.00
Spiked Amount	50.000	Range 19 - 61	Recovery =	82.76%#		
51) 2-Fluorobiphenyl	6.500	172	3748627	44.17	ppm	0.00
Spiked Amount	50.000	Range 21 - 58	Recovery =	88.34%#		
73) 2,4,6-Tribromophenol	7.714	330	433263	34.02	ppm	0.00
Spiked Amount	50.000	Range 12 - 68	Recovery =	68.04%#		
85) Terphenyl-d14	10.153	244	4456473	45.28	ppm	0.01
Spiked Amount	50.000	Range 16 - 65	Recovery =	90.56%#		
Target Compounds						
44) 2-Methylnaphthalene	6.201	141	31657	0.48	ppm	87
59) Acenaphthene	7.078	153	79582	1.07	ppm	94
66) Fluorene	7.500	166	247072	2.81	ppm	93
77) Phenanthrene	8.351	178	1611855	11.97	ppm	98
78) Anthracene	8.404	178	195497	1.41	ppm	95
81) Fluoranthene	9.651	202	1017397	6.38	ppm	95
84) Pyrene	9.923	202	702419	3.98	ppm	98
88) Benzo[a]anthracene	11.571	228	343055	2.14	ppm	92
90) Chrysene	11.614	228	276381	2.10	ppm	95
94) Benzo[b]fluoranthene	13.079	252	281500	2.04	ppm	92
95) Benzo[k]fluoranthene	13.111	252	101258	0.87	ppm	85
96) Benzo[a]pyrene	13.502	252	179645	1.52	ppm	92
97) Indeno[1,2,3-cd]pyrene	14.946	276	97562	0.89	ppm	85
101) Benzo[g,h,i]perylene	15.315	276	81318	0.75	ppm	75

(#) = qualifier out of range (m) = manual integration (+) = signals summed

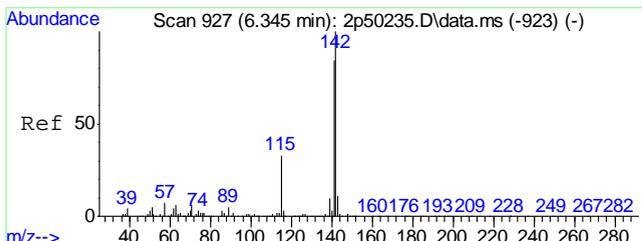
Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\  
 Data File : 2p51013.D  
 Acq On : 29 Jul 2015 8:03 pm  
 Operator : ashleyd  
 Sample : jb99970-2  
 Misc : op85890,e2p2191,30.4  
 ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 30 15:51:53 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Jul 28 11:13:30 2015  
 Response via : Initial Calibration

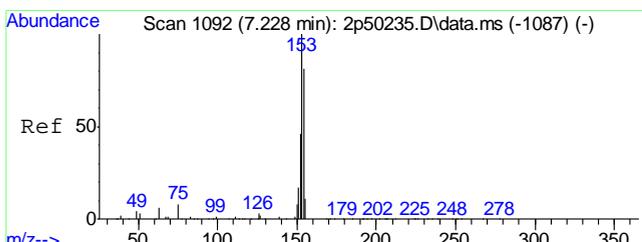
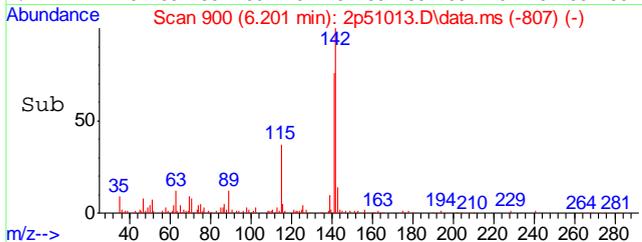
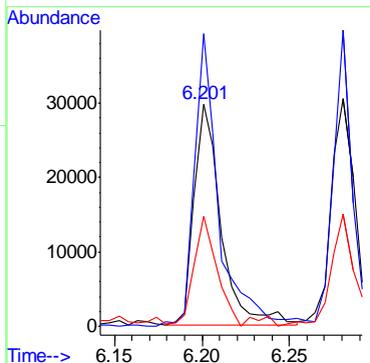
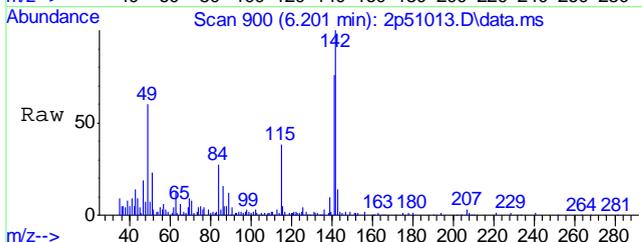


9.12  
9



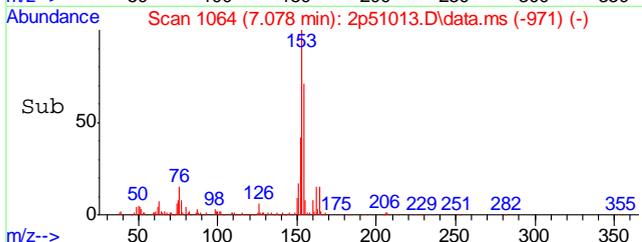
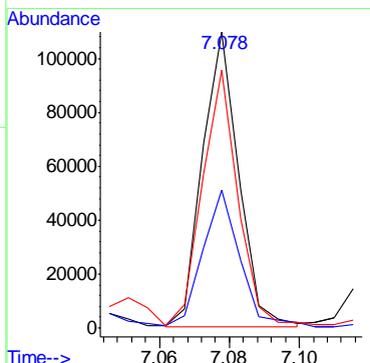
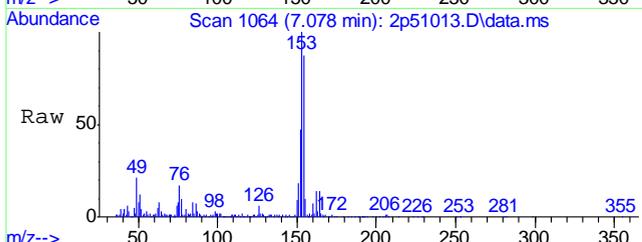
#44  
 2-Methylnaphthalene  
 Concen: 0.48 ppm  
 RT: 6.201 min Scan# 900  
 Delta R.T. 0.000 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

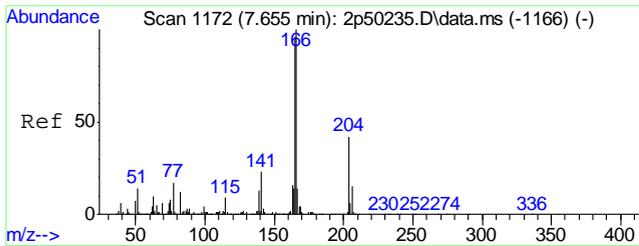
Tgt Ion	Ratio	Lower	Upper
141	100		
142	132.7	89.6	149.6
115	49.5	8.6	68.6



#59  
 Acenaphthene  
 Concen: 1.07 ppm  
 RT: 7.078 min Scan# 1064  
 Delta R.T. 0.000 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

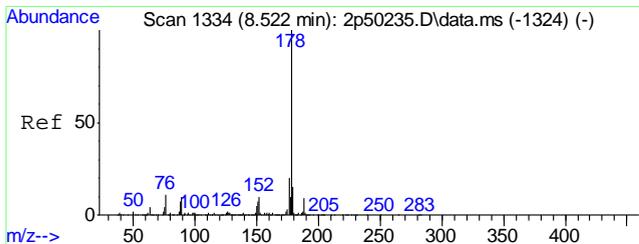
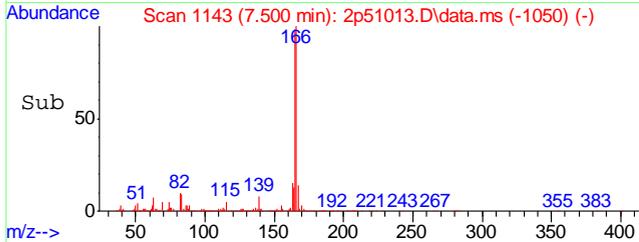
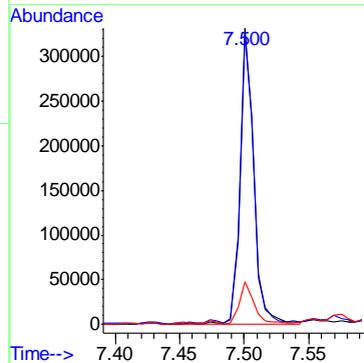
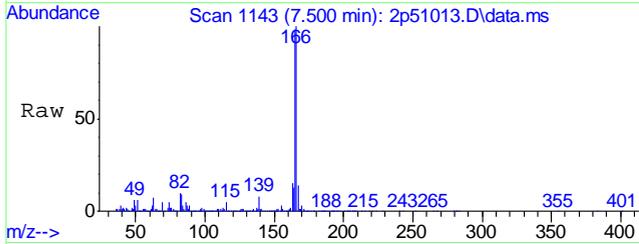
Tgt Ion	Ratio	Lower	Upper
153	100		
152	45.9	17.7	77.7
154	86.7	64.6	124.6





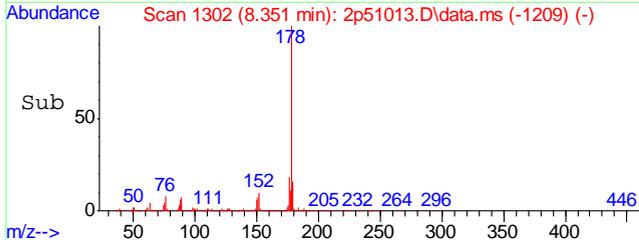
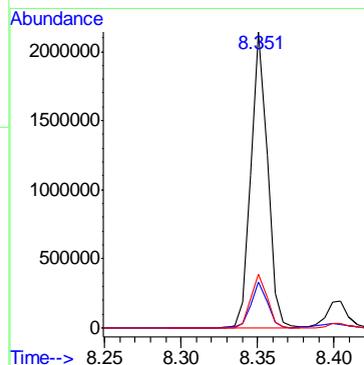
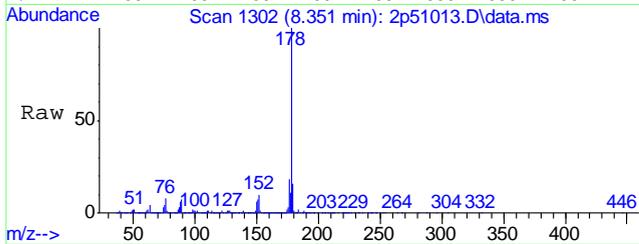
#66  
 Fluorene  
 Concen: 2.81 ppm  
 RT: 7.500 min Scan# 1143  
 Delta R.T. 0.000 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

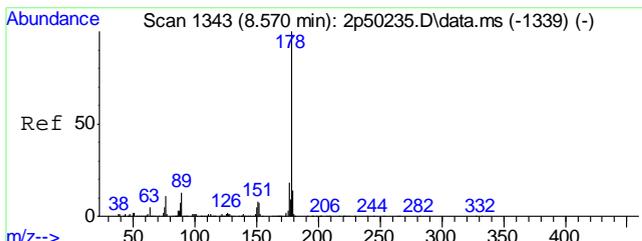
Tgt Ion	Resp	Lower	Upper
166	100		
165	97.7	60.0	120.0
167	14.0	0.0	43.8



#77  
 Phenanthrene  
 Concen: 11.97 ppm  
 RT: 8.351 min Scan# 1302  
 Delta R.T. 0.000 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

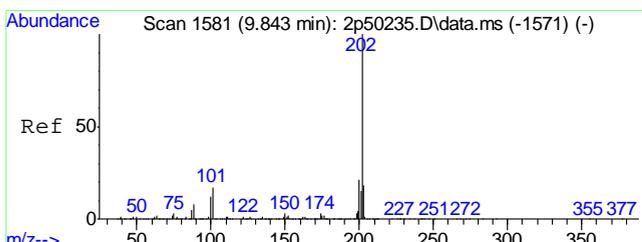
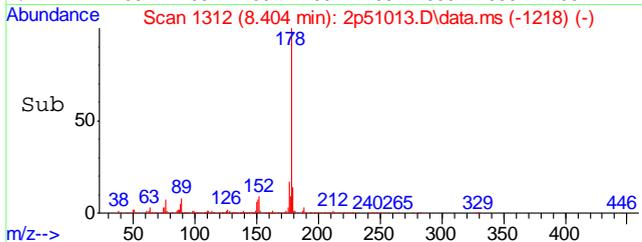
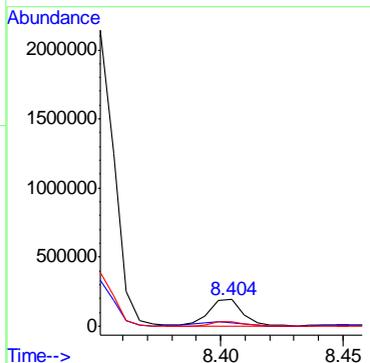
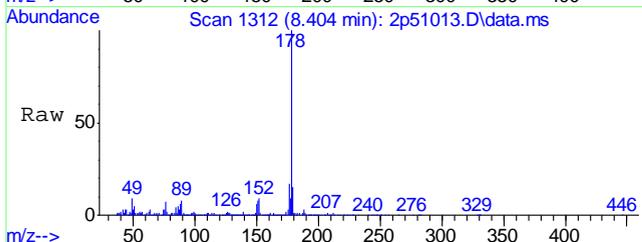
Tgt Ion	Resp	Lower	Upper
178	100		
179	15.4	0.0	45.7
176	18.2	0.0	49.4





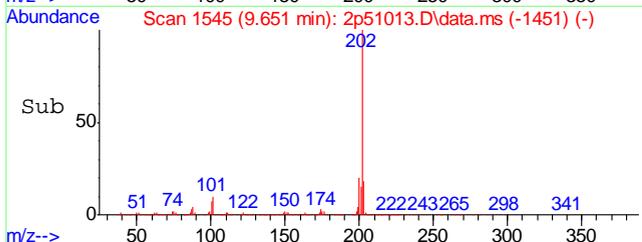
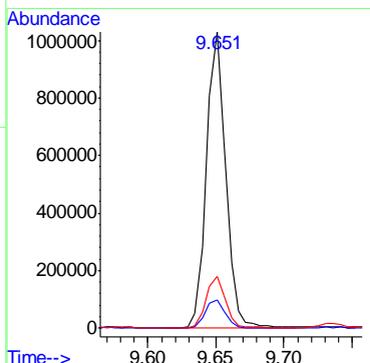
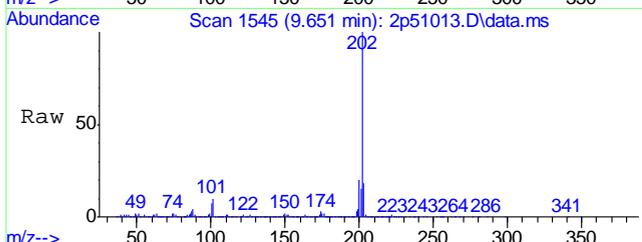
#78  
 Anthracene  
 Concen: 1.41 ppm  
 RT: 8.404 min Scan# 1312  
 Delta R.T. 0.005 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

Tgt Ion	Resp	Lower	Upper
178	195497	100	
179	13.5	0.0	46.0
176	16.8	0.0	49.0

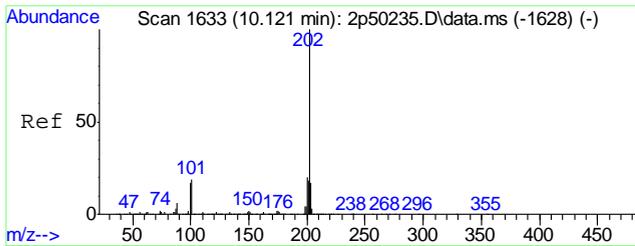


#81  
 Fluoranthene  
 Concen: 6.38 ppm  
 RT: 9.651 min Scan# 1545  
 Delta R.T. 0.005 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

Tgt Ion	Resp	Lower	Upper
202	1017397	100	
101	9.6	0.0	43.7
203	17.5	0.0	47.9

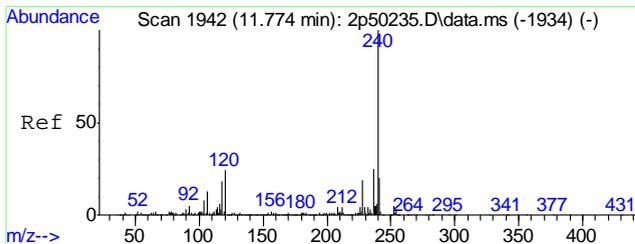
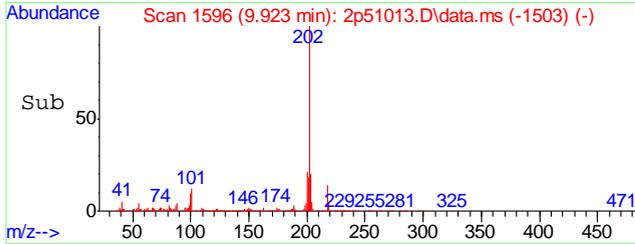
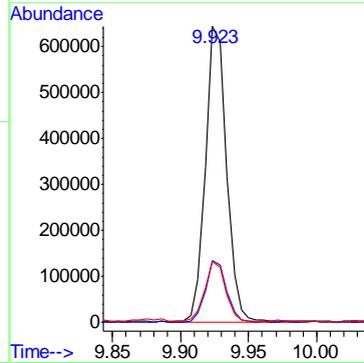
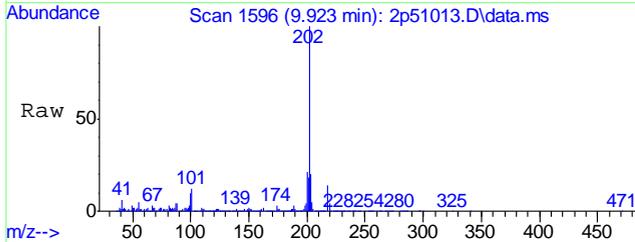


9.12  
 9



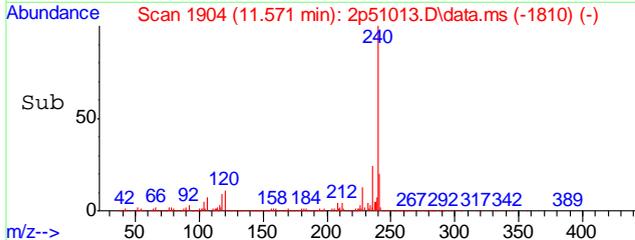
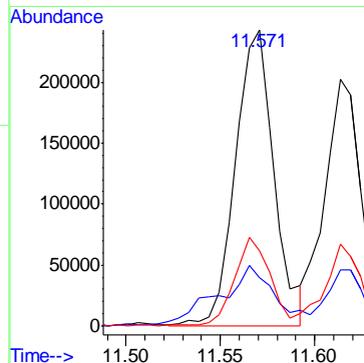
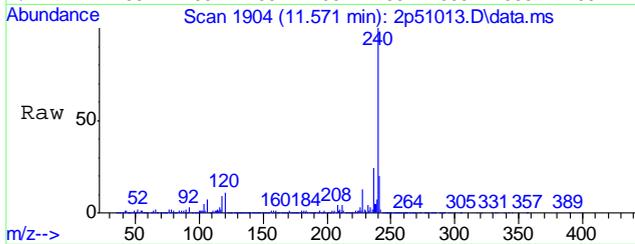
#84  
 Pyrene  
 Concen: 3.98 ppm  
 RT: 9.923 min Scan# 1596  
 Delta R.T. 0.000 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

Tgt Ion	Resp	Lower	Upper
202	702419	100	
200	20.7	0.0	50.6
203	20.1	0.0	48.4

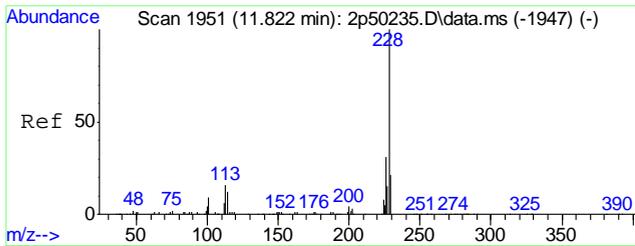


#88  
 Benzo[a]anthracene  
 Concen: 2.14 ppm  
 RT: 11.571 min Scan# 1904  
 Delta R.T. 0.005 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

Tgt Ion	Resp	Lower	Upper
228	343055	100	
229	13.9	0.0	49.6
226	25.0	0.0	57.6

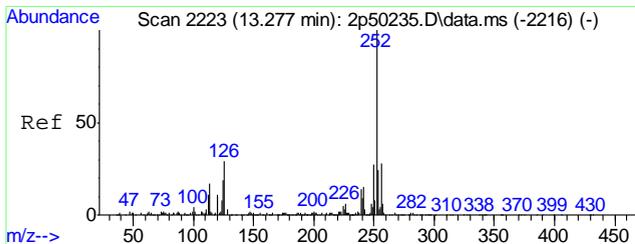
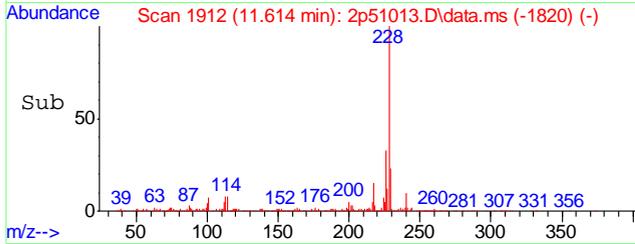
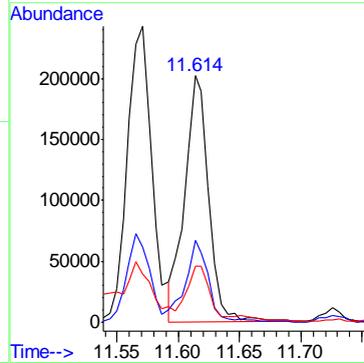
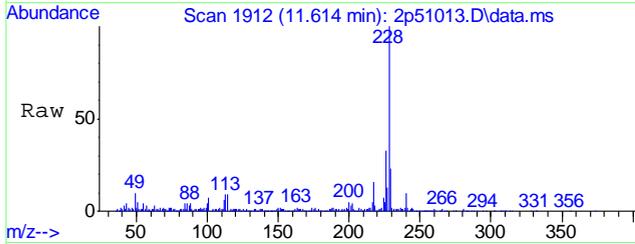


9.12  
 9



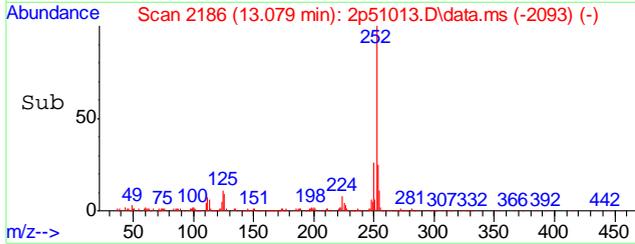
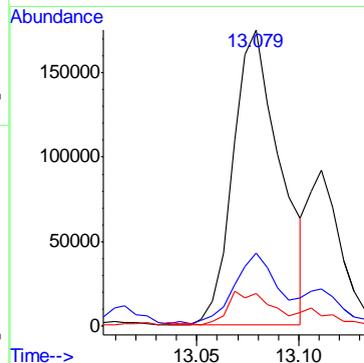
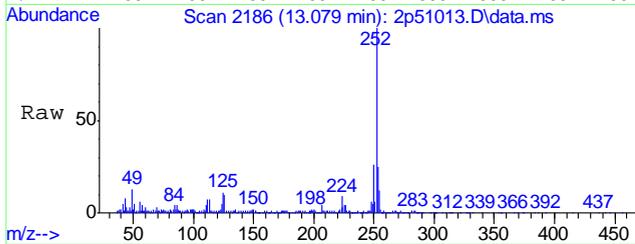
#90  
 Chrysene  
 Concen: 2.10 ppm  
 RT: 11.614 min Scan# 1912  
 Delta R.T. -0.005 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

Tgt Ion	Resp	Lower	Upper
228	276381		
226	33.4	0.0	59.9
229	21.3	0.0	50.0

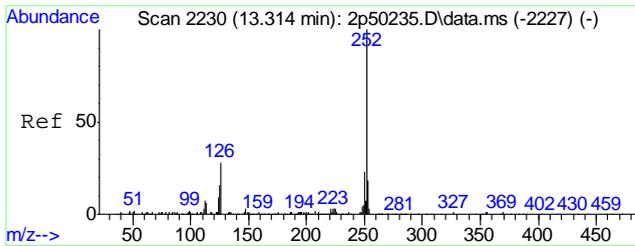


#94  
 Benzo[b]fluoranthene  
 Concen: 2.04 ppm  
 RT: 13.079 min Scan# 2186  
 Delta R.T. 0.000 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

Tgt Ion	Resp	Lower	Upper
252	281500		
253	23.9	0.0	54.6
125	9.9	0.0	47.6

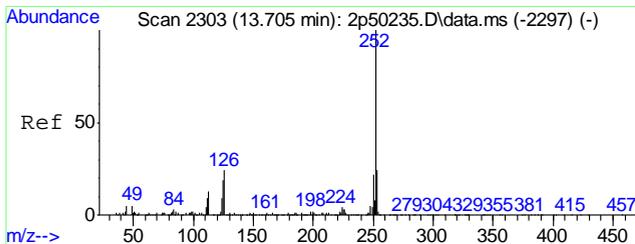
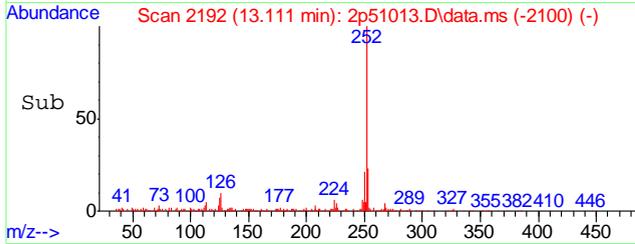
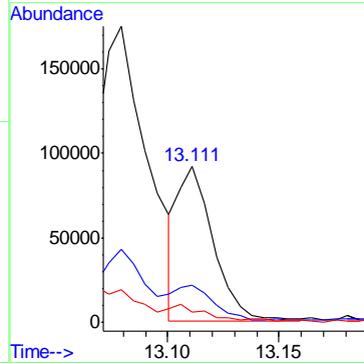
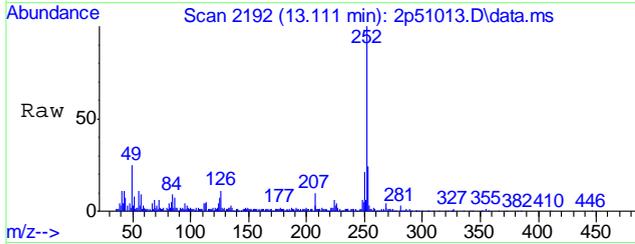


9.12  
9



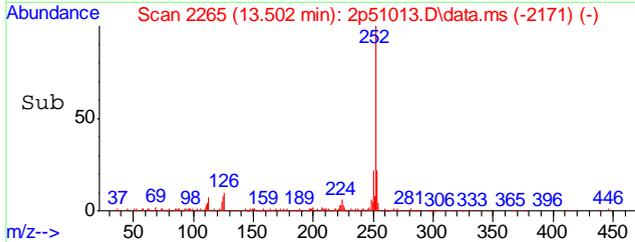
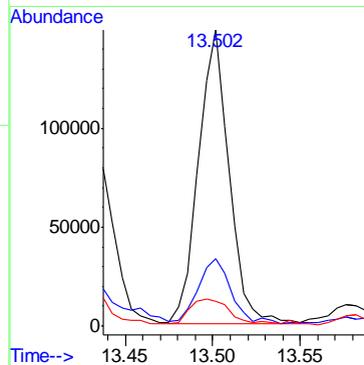
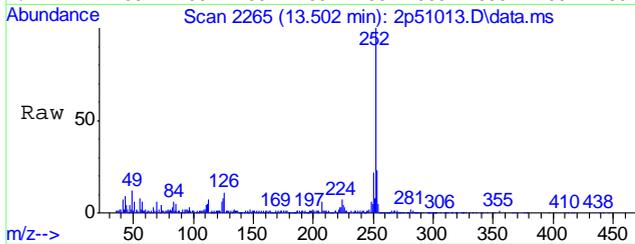
#95  
 Benzo[k]fluoranthene  
 Concen: 0.87 ppm  
 RT: 13.111 min Scan# 2192  
 Delta R.T. -0.005 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

Tgt Ion	Resp	Lower	Upper
252	101258		
253	20.2	0.0	51.9
125	2.5	0.0	45.8

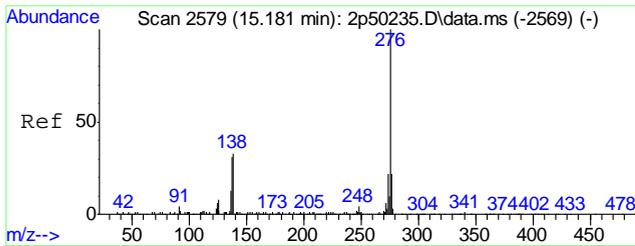


#96  
 Benzo[a]pyrene  
 Concen: 1.52 ppm  
 RT: 13.502 min Scan# 2265  
 Delta R.T. 0.005 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

Tgt Ion	Resp	Lower	Upper
252	179645		
253	21.7	0.0	51.5
125	7.7	0.0	45.4

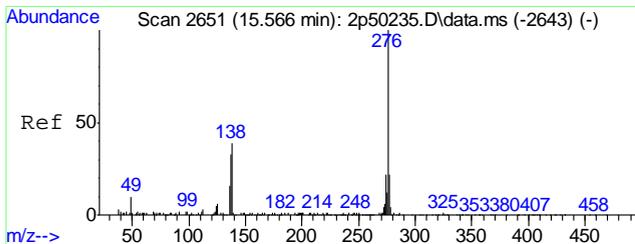
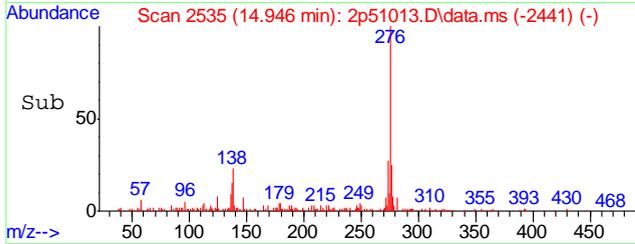
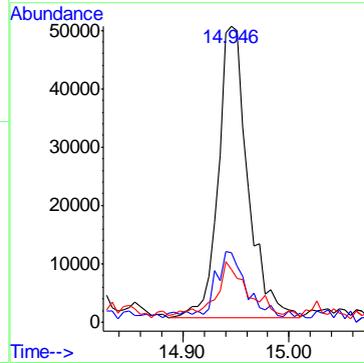
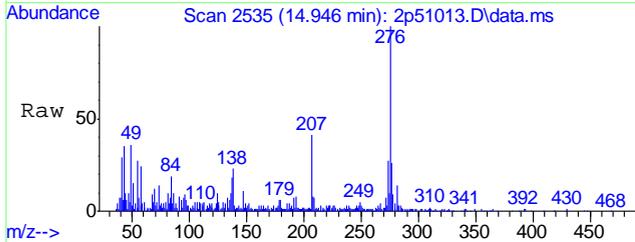


9.12  
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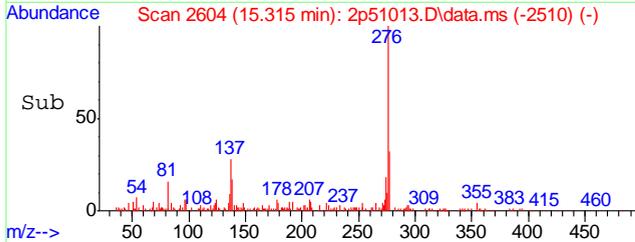
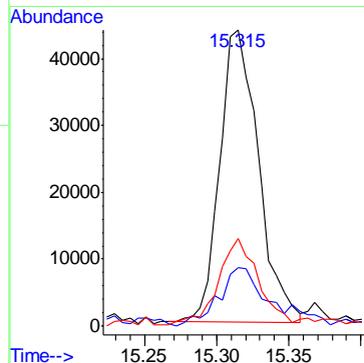
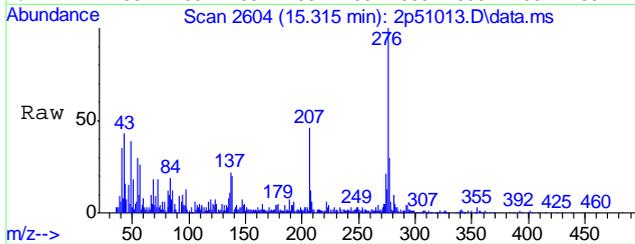
#97  
 Indeno[1,2,3-cd]pyrene  
 Concen: 0.89 ppm  
 RT: 14.946 min Scan# 2535  
 Delta R.T. 0.005 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

Tgt Ion	Resp	Lower	Upper
276	97562		
138	19.9	0.0	59.5
137	16.1	0.0	51.5



#101  
 Benzo[g,h,i]perylene  
 Concen: 0.75 ppm  
 RT: 15.315 min Scan# 2604  
 Delta R.T. 0.005 min  
 Lab File: 2p51013.D  
 Acq: 29 Jul 2015 8:03 pm

Tgt Ion	Resp	Lower	Upper
276	81318		
138	17.3	7.3	67.3
277	29.2	0.0	53.6



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\  
 Data File : 2p51014.D  
 Acq On : 29 Jul 2015 8:24 pm  
 Operator : ashleyd  
 Sample : jB99970-3  
 Misc : op85890,e2p2191,30.8  
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 30 15:54:18 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Jul 28 11:13:30 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.558	152	1470656	40.00	ppm	0.00
24) Naphthalene-d8	5.612	136	5215252	40.00	ppm	0.00
47) Acenaphthene-d10	7.051	164	3179070	40.00	ppm	0.00
69) Phenanthrene-d10	8.329	188	5523089	40.00	ppm	0.00
83) Chrysene-d12	11.581	240	5877756	40.00	ppm	0.00
92) Perylene-d12	13.582	264	5295054	40.00	ppm	0.01
102) 1,4-Dichlorobenzene-d4a	4.558	152	1470656	40.00	ppm	0.00
104) Naphthalene-d8a	5.612	136	5215252	40.00	ppm	0.00
106) Acenaphthene-d10a	7.051	164	3179070	40.00	ppm	0.00
109) Chrysene-d12a	11.581	240	5877756	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.510	112	1611754	30.69	ppm	-0.01
Spiked Amount	50.000	Range 11 - 58	Recovery =	61.38%#		
8) Phenol-d5	4.334	99	1950995	32.33	ppm	0.00
Spiked Amount	50.000	Range 10 - 59	Recovery =	64.66%#		
25) Nitrobenzene-d5	5.024	82	1968096	43.39	ppm	0.00
Spiked Amount	50.000	Range 19 - 61	Recovery =	86.78%#		
51) 2-Fluorobiphenyl	6.500	172	4323292	45.87	ppm	0.00
Spiked Amount	50.000	Range 21 - 58	Recovery =	91.74%#		
73) 2,4,6-Tribromophenol	7.714	330	676345	49.02	ppm	0.00
Spiked Amount	50.000	Range 12 - 68	Recovery =	98.04%#		
85) Terphenyl-d14	10.153	244	4902646	44.41	ppm	0.01
Spiked Amount	50.000	Range 16 - 65	Recovery =	88.82%#		

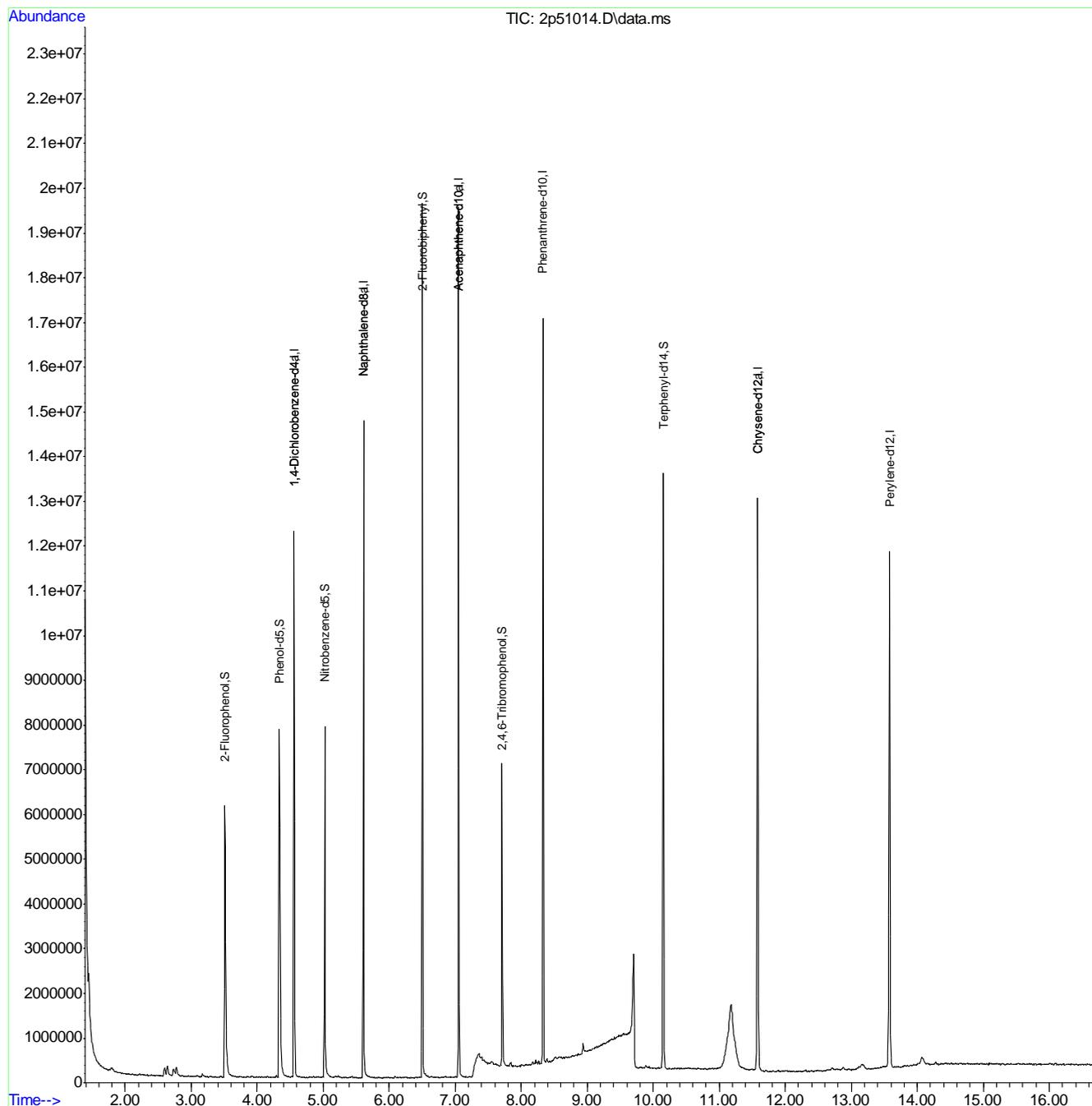
Target Compounds Qvalue

(#) = qualifier out of range (m) = manual integration (+) = signals summed

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\  
 Data File : 2p51014.D  
 Acq On : 29 Jul 2015 8:24 pm  
 Operator : ashleyd  
 Sample : jb99970-3  
 Misc : op85890,e2p2191,30.8  
 ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 30 15:54:18 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Jul 28 11:13:30 2015  
 Response via : Initial Calibration



9.1.3  
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\  
 Data File : 2p51008.D  
 Acq On : 29 Jul 2015 5:54 pm  
 Operator : ashleyd  
 Sample : op85890-mb1  
 Misc : op85890,e2p2191,30.0  
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 30 15:35:45 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Jul 28 11:13:30 2015  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
Internal Standards						
1) 1,4-Dichlorobenzene-d4	4.559	152	1399128	40.00	ppm	0.00
24) Naphthalene-d8	5.607	136	4942182	40.00	ppm	0.00
47) Acenaphthene-d10	7.051	164	3122031	40.00	ppm	0.00
69) Phenanthrene-d10	8.329	188	5645619	40.00	ppm	0.00
83) Chrysene-d12	11.587	240	6273796	40.00	ppm	0.00
92) Perylene-d12	13.587	264	5278010	40.00	ppm	0.02
102) 1,4-Dichlorobenzene-d4a	4.559	152	1399128	40.00	ppm	0.00
104) Naphthalene-d8a	5.607	136	4942182	40.00	ppm	0.00
106) Acenaphthene-d10a	7.051	164	3122031	40.00	ppm	0.00
109) Chrysene-d12a	11.587	240	6273796	40.00	ppm	0.00
System Monitoring Compounds						
5) 2-Fluorophenol	3.516	112	1594244	31.91	ppm	0.00
Spiked Amount	50.000	Range	11 - 58	Recovery	=	63.82%#
8) Phenol-d5	4.334	99	1965426	34.23	ppm	0.00
Spiked Amount	50.000	Range	10 - 59	Recovery	=	68.46%#
25) Nitrobenzene-d5	5.019	82	1994322	46.40	ppm	-0.01
Spiked Amount	50.000	Range	19 - 61	Recovery	=	92.80%#
51) 2-Fluorobiphenyl	6.500	172	4401758	47.56	ppm	0.00
Spiked Amount	50.000	Range	21 - 58	Recovery	=	95.12%#
73) 2,4,6-Tribromophenol	7.714	330	730812	51.82	ppm	0.00
Spiked Amount	50.000	Range	12 - 68	Recovery	=	103.64%#
85) Terphenyl-d14	10.153	244	6385911	54.19	ppm	0.01
Spiked Amount	50.000	Range	16 - 65	Recovery	=	108.38%#

Target Compounds Qvalue

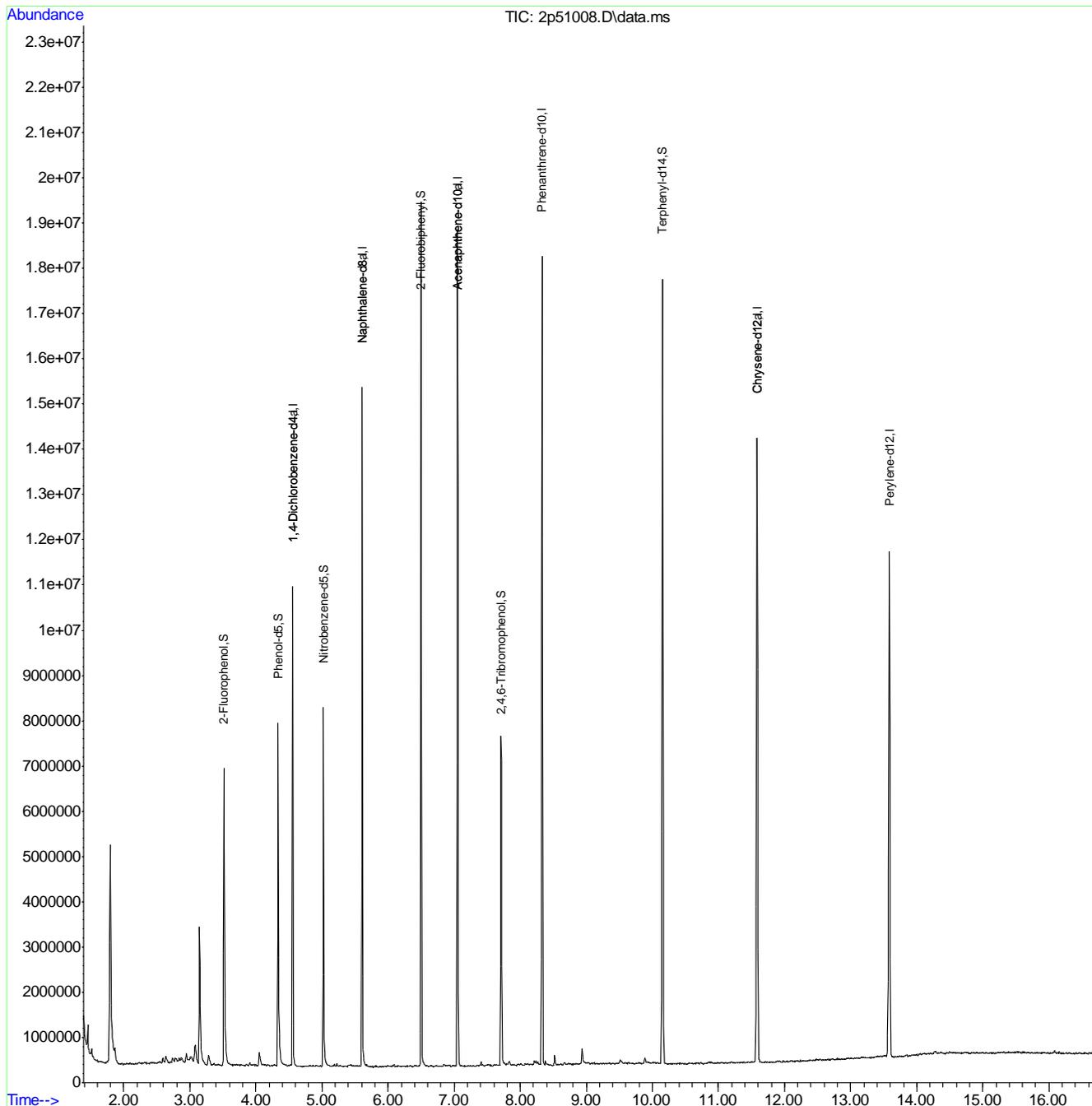
(#) = qualifier out of range (m) = manual integration (+) = signals summed

9.2.1  
9

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\2P2191\  
 Data File : 2p51008.D  
 Acq On : 29 Jul 2015 5:54 pm  
 Operator : ashleyd  
 Sample : op85890-mb1  
 Misc : op85890,e2p2191,30.0  
 ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 30 15:35:45 2015  
 Quant Method : C:\MSDCHEM\1\METHODS\M2P2153.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Jul 28 11:13:30 2015  
 Response via : Initial Calibration



## Metals Analysis

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### QC Data Summaries

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**Includes the following where applicable:**

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP      Date Analyzed: 07/29/15      Methods: EPA 200.7, SW846 6010C  
Analyst: AP      Run ID: MA37201  
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
09:37	MA37201-STD1	1		STDA
09:40	MA37201-STD2	1		STDB
09:43	ZZZZZZ	1		
09:46	ZZZZZZ	1		
09:49	MA37201-ICV1	1		
09:52	MA37201-ICB1	1		
09:55	MA37201-CCV1	1		
09:58	MA37201-CCB1	1		
10:01	MA37201-CRI1	1		
10:04	MA37201-CRID1	1		
10:07	MA37201-CRIA1	1		
10:10	MA37201-ICSA1	1		
10:14	MA37201-ICSAB1	1		
10:17	ZZZZZZ	1		
10:20	ZZZZZZ	1		
10:23	ZZZZZZ	1		
10:26	MA37201-CCV2	1		
10:29	MA37201-CCB2	1		
10:32	ZZZZZZ	1		
10:35	MP87955-LC1	1		
10:38	MP87955-PS1	1		
10:41	ZZZZZZ	1		
10:44	ZZZZZZ	1		
10:48	ZZZZZZ	1		
10:51	ZZZZZZ	1		
10:54	MP87928-S1	1		
10:57	MP87928-S2	1		
11:00	MA37201-CCV3	1		
11:03	MA37201-CCB3	1		
11:06	JB99945-1	1		(sample used for QC only; not part of login JB99970)
11:09	MP87928-SD1	5		
11:12	ZZZZZZ	1		
11:15	ZZZZZZ	1		

10.1  
10

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
Analyst: AP Run ID: MA37201  
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:18	ZZZZZZ	1		
11:21	ZZZZZZ	1		
11:24	ZZZZZZ	1		
11:27	ZZZZZZ	1		
11:30	ZZZZZZ	1		
11:33	MA37201-CCV4	1		
11:36	MA37201-CCB4	1		
11:39	ZZZZZZ	1		
11:43	ZZZZZZ	1		
11:46	ZZZZZZ	1		
11:49	ZZZZZZ	1		
11:52	ZZZZZZ	1		
11:55	ZZZZZZ	1		
11:58	ZZZZZZ	1		
12:01	MP87962-MB1	1		
12:04	MP87962-B1	1		
12:07	MA37201-CCV5	1		
12:10	MA37201-CCB5	1		
12:13	ZZZZZZ	1		
12:16	ZZZZZZ	1		
12:20	ZZZZZZ	2		
12:23	MP87962-S1	1		
12:26	MP87962-S2	1		
12:29	JB99498-88	1		(sample used for QC only; not part of login JB99970)
12:32	MP87962-SD1	5		
----->	Last reportable sample/prep for job JB99970			
12:35	ZZZZZZ	1		
12:38	MP87913-MB2	1		
12:41	ZZZZZZ	1		
12:44	MA37201-CCV6	1		
12:47	MA37201-CCB6	1		
12:50	ZZZZZZ	1		
12:54	ZZZZZZ	1		
12:57	ZZZZZZ	1		

10.1  
10

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
Analyst: AP Run ID: MA37201  
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:00	ZZZZZZ	1		
13:04	ZZZZZZ	1		
13:07	ZZZZZZ	1		
13:11	MP87913-B2	1		
13:13	MP87913-S3	3		
13:16	MP87913-S4	3		
13:20	MA37201-CCV7	1		
13:22	MA37201-CCB7	1		
13:26	JB99823-8F	3		(sample used for QC only; not part of login JB99970)
13:29	MP87913-SD2	15		
13:33	MA37201-CRI2	1		
13:36	MA37201-CRID2	1		
13:39	MA37201-CRIA2	1		
13:42	MA37201-ICSA2	1		
13:45	MA37201-ICSAB2	1		
13:49	MA37201-CCV8	1		
13:51	MA37201-CCB8	1		
----->	Last reportable CCB for job JB99970			
13:55	ZZZZZZ	1		
13:58	ZZZZZZ	1		
14:01	ZZZZZZ	1		
14:04	ZZZZZZ	1		
14:07	ZZZZZZ	1		
14:11	ZZZZZZ	1		
14:14	ZZZZZZ	1		
14:17	ZZZZZZ	1		
14:20	ZZZZZZ	1		
14:23	ZZZZZZ	1		
14:27	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

10.1  
10

INTERNAL STANDARD SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 Analyst: AP Run ID: MA37201  
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
09:37	MA37201-STD1	2394 R	78468 R	18557 R	5852 R
09:40	MA37201-STD2	2223	73400	18402	5051
09:43	ZZZZZZ	2340	77725	19277	5347
09:46	ZZZZZZ	2405	80073	19216	5865
09:49	MA37201-ICV1	2273	74893	18879	5218
09:52	MA37201-ICB1	2404	79919	19278	5854
09:55	MA37201-CCV1	2271	74574	18866	5206
09:58	MA37201-CCB1	2396	80021	18986	5843
10:01	MA37201-CRI1	2397	80803	19632	5757
10:04	MA37201-CRID1	2474	81564	19322	5963
10:07	MA37201-CRIA1	2453	80339	19532	5944
10:10	MA37201-ICSA1	2093	68094	18510	4611
10:14	MA37201-ICSAB1	2125	68925	18546	4640
10:17	ZZZZZZ	2373	78586	19405	5802
10:20	ZZZZZZ	2378	79869	19152	5843
10:23	ZZZZZZ	2362	79225	19184	5814
10:26	MA37201-CCV2	2267	75056	19172	5209
10:29	MA37201-CCB2	2395	79783	19341	5834
10:32	ZZZZZZ	2413	81086	19975	5938
10:35	MP87955-LC1	2385	79828	20792	5354
10:38	MP87955-PS1	2211	72479	19521	4963
10:41	ZZZZZZ	2266	75503	20196	5102
10:44	ZZZZZZ	2274	75239	20537	5074
10:48	ZZZZZZ	2263	74736	20168	5005
10:51	ZZZZZZ	2336	79170	20121	5794
10:54	MP87928-S1	2089	70616	19502	4544
10:57	MP87928-S2	2107	71397	19588	4578
11:00	MA37201-CCV3	2217	73433	19232	5106
11:03	MA37201-CCB3	2353	78076	19323	5744
11:06	JB99945-1	2116	71534	19648	4614
11:09	MP87928-SD1	2242	75285	19473	5198
11:12	ZZZZZZ	2190	73058	19885	4863
11:15	ZZZZZZ	2319	76509	20083	5293

10.1.1  
10

INTERNAL STANDARD SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 Analyst: AP Run ID: MA37201  
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:18	ZZZZZZ	2265	75172	19882	5073
11:21	ZZZZZZ	2316	76498	20199	5220
11:24	ZZZZZZ	2216	72813	19578	4878
11:27	ZZZZZZ	2165	72506	19949	4853
11:30	ZZZZZZ	2207	72727	19952	4864
11:33	MA37201-CCV4	2208	72758	19171	5086
11:36	MA37201-CCB4	2342	77990	19264	5702
11:39	ZZZZZZ	2354	77530	20502	5212
11:43	ZZZZZZ	2219	73868	19726	4986
11:46	ZZZZZZ	2339	76857	20334	5255
11:49	ZZZZZZ	2187	73396	19814	5015
11:52	ZZZZZZ	2244	75158	20184	5062
11:55	ZZZZZZ	2174	72503	19894	4783
11:58	ZZZZZZ	2345	78655	20095	5775
12:01	MP87962-MB1	2354	79395	20140	5828
12:04	MP87962-B1	2273	74908	19841	5287
12:07	MA37201-CCV5	2199	73124	19320	5097
12:10	MA37201-CCB5	2331	77962	19552	5715
12:13	ZZZZZZ	2012	68504	19446	4322
12:16	ZZZZZZ	2111	70054	18487	4828
12:20	ZZZZZZ	2100	69915	19325	4626
12:23	MP87962-S1	2226	73819	19730	5166
12:26	MP87962-S2	2227	74116	19588	5174
12:29	JB99498-88	2372	77446	19924	5553
12:32	MP87962-SD1	2333	77097	19423	5640
12:35	ZZZZZZ	2295	77393	19579	5669
12:38	MP87913-MB2	2317	77124	19655	5657
12:41	ZZZZZZ	2162	72517	18916	4980
12:44	MA37201-CCV6	2188	72527	19002	5042
12:47	MA37201-CCB6	2350	77680	19333	5669
12:50	ZZZZZZ	2163	73196	19138	5418
12:54	ZZZZZZ	2221	74850	19257	5467
12:57	ZZZZZZ	2347	77020	19232	5635

10.1.1  
10

INTERNAL STANDARD SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 Analyst: AP Run ID: MA37201  
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
13:00	ZZZZZZ	2325	77352	19378	5676
13:04	ZZZZZZ	1882	61701	17719	4160
13:07	ZZZZZZ	2015	65961	18236	4434
13:11	MP87913-B2	2224	74202	19477	5223
13:13	MP87913-S3	2156	71468	19065	4937
13:16	MP87913-S4	2162	71149	18994	4937
13:20	MA37201-CCV7	2199	72448	19054	5068
13:22	MA37201-CCB7	2329	77201	19348	5681
13:26	JB99823-8F	2164	71981	19328	5031
13:29	MP87913-SD2	2260	75306	19413	5432
13:33	MA37201-CRI2	2281	75474	19214	5473
13:36	MA37201-CRID2	2304	76921	19137	5632
13:39	MA37201-CRIA2	2314	77076	19294	5644
13:42	MA37201-ICSA2	1984	65373	18324	4435
13:45	MA37201-ICSAB2	2006	65375	18406	4450
13:49	MA37201-CCV8	2203	72393	19033	5078
13:51	MA37201-CCB8	2363	77396	19404	5704
13:55	ZZZZZZ	2337	76731	19310	5661
13:58	ZZZZZZ	2308	77197	19379	5663
14:01	ZZZZZZ	2313	77061	19460	5637
14:04	ZZZZZZ	2306	77289	19371	5659
14:07	ZZZZZZ	2313	76904	19564	5670
14:11	ZZZZZZ	2341	77614	19452	5717
14:14	ZZZZZZ	2283	75935	19354	5610
14:17	ZZZZZZ	2308	72436	20055	5045
14:20	ZZZZZZ	2096	69765	18646	4840
14:23	ZZZZZZ	2098	69523	18703	4827
14:27	ZZZZZZ	2313	77374	19278	5675

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37201 Units: ug/l

Metal	RL	IDL	09:52	09:58		10:29		11:03						
			ICB1	raw	final	CCB1	raw	final	CCB2	raw	final	CCB3	raw	final
Aluminum	200	10	anr											
Antimony	6.0	2.4	anr											
Arsenic	3.0	2.5	anr											
Barium	200	.2	anr											
Beryllium	1.0	.1	anr											
Bismuth	20	2.7												
Boron	100	2												
Cadmium	3.0	.4	anr											
Calcium	5000	4.5	anr											
Chromium	10	.9	anr											
Cobalt	50	.4	anr											
Copper	10	1.1	anr											
Iron	100	1.7	anr											
Lead	3.0	1.7	-0.60	<3.0	0.10	<3.0	-0.10	<3.0	1.4	<3.0				
Lithium	20	1.5												
Magnesium	5000	21	anr											
Manganese	15	.1	anr											
Molybdenum	20	.6												
Nickel	10	.5	anr											
Palladium	50	2												
Potassium	10000	29	anr											
Selenium	10	2.6	anr											
Silicon	200	1.9												
Silver	10	.8	anr											
Sodium	10000	9.4	anr											
Sulfur	50	4.1												
Strontium	10	.1												
Thallium	2.0	1.9	anr											
Tin	10	1.3												
Titanium	10	1.1												
Tungsten	50	1.9												
Vanadium	50	.7	anr											
Zinc	20	.3	anr											

10.1.2  
10

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37201 Units: ug/l

Time:	09:52	09:58	10:29	11:03
Sample ID:	ICB1	CCB1	CCB2	CCB3
Metal	raw	raw	raw	raw
	final	final	final	final

Zirconium 10 .3

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.1.2  
 10

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37201 Units: ug/l

Metal	RL	IDL	Time:	11:36	12:10	12:47	13:22	raw	final	
			Sample ID:	CCB4	CCB5	CCB6	CCB7			
Aluminum	200	10	anr							
Antimony	6.0	2.4	anr							
Arsenic	3.0	2.5	anr							
Barium	200	.2	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	2.7								
Boron	100	2								
Cadmium	3.0	.4	anr							
Calcium	5000	4.5	anr							
Chromium	10	.9	anr							
Cobalt	50	.4	anr							
Copper	10	1.1	anr							
Iron	100	1.7	anr							
Lead	3.0	1.7	-1.5	<3.0	0.20	<3.0	-0.10	<3.0	0.50	<3.0
Lithium	20	1.5								
Magnesium	5000	21	anr							
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.5	anr							
Palladium	50	2								
Potassium	10000	29	anr							
Selenium	10	2.6	anr							
Silicon	200	1.9								
Silver	10	.8	anr							
Sodium	10000	9.4	anr							
Sulfur	50	4.1								
Strontium	10	.1								
Thallium	2.0	1.9	anr							
Tin	10	1.3								
Titanium	10	1.1								
Tungsten	50	1.9								
Vanadium	50	.7	anr							
Zinc	20	.3	anr							

10.1.2  
10

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37201 Units: ug/l

Time:	11:36	12:10	12:47	13:22						
Sample ID:	CCB4	CCB5	CCB6	CCB7						
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final

Zirconium 10 .3

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.1.2  
 10

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37201 Units: ug/l

Metal	RL	IDL	13:51 CCB8 raw	final
Aluminum	200	10	anr	
Antimony	6.0	2.4	anr	
Arsenic	3.0	2.5	anr	
Barium	200	.2	anr	
Beryllium	1.0	.1	anr	
Bismuth	20	2.7		
Boron	100	2		
Cadmium	3.0	.4	anr	
Calcium	5000	4.5	anr	
Chromium	10	.9	anr	
Cobalt	50	.4	anr	
Copper	10	1.1	anr	
Iron	100	1.7	anr	
Lead	3.0	1.7	0.50	<3.0
Lithium	20	1.5		
Magnesium	5000	21	anr	
Manganese	15	.1	anr	
Molybdenum	20	.6		
Nickel	10	.5	anr	
Palladium	50	2		
Potassium	10000	29	anr	
Selenium	10	2.6	anr	
Silicon	200	1.9		
Silver	10	.8	anr	
Sodium	10000	9.4	anr	
Sulfur	50	4.1		
Strontium	10	.1		
Thallium	2.0	1.9	anr	
Tin	10	1.3		
Titanium	10	1.1		
Tungsten	50	1.9		
Vanadium	50	.7	anr	
Zinc	20	.3	anr	

10.1.2  
10

BLANK RESULTS SUMMARY  
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP      Date Analyzed: 07/29/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: result < RL      Run ID: MA37201      Units: ug/l

Time:			13:51	
Sample ID:			CCB8	
Metal	RL	IDL	raw	final

Zirconium      10      .3

(\*) Outside of QC limits  
(anr) Analyte not requested

10.1.2  
10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP      Date Analyzed: 07/29/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 90 to 110 % Recovery      Run ID: MA37201      Units: ug/l

Metal	Sample ID: ICV	09:49		CCV	09:55		CCV	10:26	
		ICV1	Results % Rec		CCV1	Results % Rec		CCV2	Results % Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2070	103.5	2000	2070	103.5	2000	2100	105.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

10.1.3  
10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP      Date Analyzed: 07/29/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 90 to 110 % Recovery      Run ID: MA37201      Units: ug/l

	Time:		09:49		09:55		10:26		
Sample ID:	ICV	ICV1		CCV		CCV1		CCV2	
Metal	True	Results	% Rec	True <td></td> <th>Results</th> <td>% Rec</td> <th>True <td></td> </th>		Results	% Rec	True <td></td>	

Zirconium

(\*) Outside of QC limits  
(anr) Analyte not requested



10.1.3  
10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP      Date Analyzed: 07/29/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 90 to 110 % Recovery      Run ID: MA37201      Units: ug/l

Metal	Sample ID: CCV	11:00		CCV	11:33		CCV	12:07	
		CCV3	Results		% Rec	CCV4		Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2130	106.5	2000	2130	106.5	2000	2140	107.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

10.1.3  
10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP      Date Analyzed: 07/29/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 90 to 110 % Recovery      Run ID: MA37201      Units: ug/l

	Time:								
	Sample ID:	CCV	11:00 CCV3	CCV	11:33 CCV4	CCV	12:07 CCV5		
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec

Zirconium

(\*) Outside of QC limits  
(anr) Analyte not requested



10.1.3  
10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP      Date Analyzed: 07/29/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 90 to 110 % Recovery      Run ID: MA37201      Units: ug/l

Metal	Sample ID: CCV	12:44		CCV	13:20		CCV	13:49	
		CCV6	Results % Rec		CCV7	Results % Rec		CCV8	Results % Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2180	109.0	2000	2180	109.0	2000	2170	108.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Palladium									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Sulfur									
Strontium									
Thallium	anr								
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

10.1.3  
10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP      Date Analyzed: 07/29/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 90 to 110 % Recovery      Run ID: MA37201      Units: ug/l

	Time:								
Sample ID:	CCV	12:44	CCV6	CCV	13:20	CCV7	CCV	13:49	CCV8
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec

Zirconium

(\*) Outside of QC limits  
(anr) Analyte not requested



10.1.3  
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37201 Units: ug/l

Time:	10:01	10:04	10:07						
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1		CRIA1	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	2.2	73.3	2.7	108.0	19.7	98.5
Lithium	20								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000	anr					
Sulfur	50								
Strontium	10								
Thallium	10		2.0	anr					
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

10.1.4  
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37201 Units: ug/l

Time:				10:01			10:04			10:07
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1		CRI1		
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec	

Zirconium 10

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.1.4  
**10**

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37201 Units: ug/l

Time:				13:33			13:36			13:39
Sample ID:	CRI	CRIA	CRID	CRI2	% Rec	Results	% Rec	Results	% Rec	Results
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results
Aluminum	200	500	100	anr						
Antimony	6.0	20	3.0	anr						
Arsenic	8.0	20	3.0	anr						
Barium	200		4.0	anr						
Beryllium	2.0		1.0	anr						
Bismuth	20									
Boron	100		10							
Cadmium	3.0		1.0	anr						
Calcium	5000	2000	1000	anr						
Chromium	10		2.0	anr						
Cobalt	50		3.0	anr						
Copper	10		2.0	anr						
Iron	100	500		anr						
Lead	3.0	20	2.5	3.7	123.3	2.9	116.0	22.5	112.5	
Lithium	20									
Magnesium	5000	2000	100	anr						
Manganese	15		3.0	anr						
Molybdenum	20									
Nickel	10		4.0	anr						
Palladium	50									
Potassium	5000		2000	anr						
Selenium	10	20	5.0	anr						
Silicon	200									
Silver	5.0		2.0	anr						
Sodium	5000		1000	anr						
Sulfur	50									
Strontium	10									
Thallium	10		2.0	anr						
Tin	10									
Titanium	10									
Tungsten	50									
Vanadium	50		2.0	anr						
Zinc	20		10	anr						

10.1.4  
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: CRI 70-130% CRIA 70-130% Run ID: MA37201 Units: ug/l

Time:	13:33		13:36		13:39				
Sample ID:	CRI	CRIA	CRID	CRI2	CRID2	CRIA2			
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec

Zirconium 10

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.1.4  
 10

INTERFERING ELEMENT CHECK STANDARDS SUMMARY  
Part 1 - ICSA and ICSAB Standards

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP      Date Analyzed: 07/29/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 80 to 120 % Recovery      Run ID: MA37201      Units: ug/l

Metal	Time:		10:10		10:14		13:42		13:45	
	Sample ID:	ICSA	ICSAB	ICSAL	ICSAB1	ICSAB2	ICSAB2	ICSAB2	ICSAB2	ICSAB2
	True	True	Results	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	500000	500000	499000	99.8	488000	97.6	509000	101.8	501000	100.2
Antimony		1000	-5.5		1010	101.0	-2.4		1090	109.0
Arsenic		1000	-1.7		977	97.7	-3.6		1060	106.0
Barium		500	-1.0		483	96.6	-0.80		491	98.2
Beryllium		500	-0.10		488	97.6	-0.10		508	101.6
Bismuth		500	11.0		502	100.4	10.9		540	108.0
Boron			-6.2		-2.5		-5.6		-4.3	
Cadmium		1000	3.0		985	98.5	2.0		1070	107.0
Calcium	400000	400000	368000	92.0	364000	91.0	387000	96.8	382000	95.5
Chromium		500	1.3		487	97.4	1.4		520	104.0
Cobalt		500	1.0		487	97.4	1.3		520	104.0
Copper		500	0.10		509	101.8	0.60		541	108.2
Iron	200000	200000	183000	91.5	178000	89.0	194000	97.0	189000	94.5
Lead		1000	4.1		948	94.8	2.4		1020	102.0
Lithium		500	21.1		515	103.0	21.9		504	100.8
Magnesium	500000	500000	495000	99.0	484000	96.8	526000	105.2	512000	102.4
Manganese		500	0.40		493	98.6	0.70		525	105.0
Molybdenum		500	0.80		471	94.2	0.80		507	101.4
Nickel		1000	4.0		958	95.8	4.4		1020	102.0
Palladium		500	33.6		552	110.4	35.6		586	117.2
Potassium			181		173		189		158	
Selenium		1000	-0.30		1010	101.0	5.1		1090	109.0
Silicon			14.5		12.2		15.1		15.6	
Silver		1000	5.4		1050	105.0	8.4		1110	111.0
Sodium			4.4		17.4		36.0		47.9	
Sulfur		500	18.2		500	100.0	13.2		545	109.0
Strontium			3.8		3.7		3.3		3.2	
Thallium		1000	2.6		933	93.3	1.5		994	99.4
Tin			-5.5		-5.1		-4.6		-6.1	
Titanium			1.8		1.9		2.5		1.8	
Tungsten		500	1.7		491	98.2	10.1		534	106.8
Vanadium		500	0.10		487	97.4	-0.90		516	103.2
Zinc		1000	-1.8		941	94.1	-2.0		1030	103.0

10.1.5 10

INTERFERING ELEMENT CHECK STANDARDS SUMMARY  
 Part 1 - ICSA and ICSAB Standards

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SE072915M1.ICP Date Analyzed: 07/29/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: 80 to 120 % Recovery Run ID: MA37201 Units: ug/l

Time:			10:10			10:14			13:42			13:45
Sample ID:	ICSA	ICSAB	ICSAL	% Rec	ICSAB1	% Rec	ICSAB2	% Rec	ICSAB2	% Rec		

Metal	True	True	Results	% Rec						
Zirconium		500	-3.9		436	87.2	-4.2		463	92.6

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.1.5  
 10

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
Analyst: MS Run ID: MA37212  
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
10:00	MA37212-STD1	1		STDA
10:06	MA37212-STD2	1		STDB
10:12	ZZZZZZ	1		
10:18	ZZZZZZ	1		
10:25	MA37212-ICV1	1		
10:54	MA37212-ICB1	1		
10:59	MA37212-ICCV1	1		
11:09	MA37212-CCB1	1		
11:15	MA37212-CRI1	1		
11:21	ZZZZZZ	1		
11:27	MA37212-CRID1	1		
11:33	MA37212-CRIA1	1		
11:39	MA37212-ICSA1	1		
11:46	MA37212-ICSAB1	1		
11:52	ZZZZZZ	1		
11:58	ZZZZZZ	1		
12:04	ZZZZZZ	1		
12:10	MA37212-CCV1	1		
12:16	MA37212-CCB2	1		
12:22	MA37212-CRID2	1		
12:28	MP87990-MB1	1		
12:34	MP87990-MB2	1		
12:40	MP87990-B1	1		
12:46	MP87990-B2	1		
12:52	MP87990-S1	1		
12:58	MP87990-S2	1		
13:03	JB99964-3	1		(sample used for QC only; not part of login JB99970)
13:09	MP87990-SD1	5		
13:15	MA37212-CCV2	1		
13:21	MA37212-CCB3	1		
13:27	MP87990-SD1	5		
13:33	ZZZZZZ	1		
13:39	ZZZZZZ	1		

10.2  
10

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP      Date Analyzed: 07/30/15      Methods: EPA 200.7, SW846 6010C  
Analyst: MS      Run ID: MA37212  
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
13:45	ZZZZZZ	1		
13:51	ZZZZZZ	1		
13:57	ZZZZZZ	1		
14:03	ZZZZZZ	1		
14:09	ZZZZZZ	1		
14:15	ZZZZZZ	1		
14:21	MA37212-CCV3	1		
14:27	MA37212-CCB4	1		
14:33	ZZZZZZ	1		
14:39	ZZZZZZ	1		
14:45	ZZZZZZ	1		
14:51	ZZZZZZ	1		
14:57	ZZZZZZ	1		
15:03	ZZZZZZ	1		
15:09	ZZZZZZ	1		
15:15	ZZZZZZ	1		
15:21	ZZZZZZ	1		
15:28	MA37212-CCV4	1		
15:33	MA37212-CCB5	1		
15:39	ZZZZZZ	1		
15:46	ZZZZZZ	1		
15:52	ZZZZZZ	1		
15:58	MP87966-MB1	5		
16:04	MP87966-B1	5		
16:10	MP87966-S1	5		
16:15	MP87966-S2	5		
16:21	JB99786-1	5		(sample used for QC only; not part of login JB99970)
16:28	MP87966-SD1	25		
16:34	MA37212-CCV5	1		
16:39	MA37212-CCB6	1		
16:45	ZZZZZZ	5		
16:52	ZZZZZZ	5		
16:58	ZZZZZZ	5		

10.2 10

Accutest Laboratories Instrument Runlog  
Inorganics Analyses

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
Analyst: MS Run ID: MA37212  
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:04	ZZZZZZ	5		
17:10	MP87967-MB1	5		
17:16	MP87967-B1	5		
17:22	MP87967-S1	5		
17:28	MP87967-S2	5		
17:34	JB99796-1	5		(sample used for QC only; not part of login JB99970)
17:40	MA37212-CCV6	1		
17:46	MA37212-CCB7	1		
17:52	MP87967-SD1	25		
17:58	ZZZZZZ	1		
18:04	ZZZZZZ	1		
18:10	ZZZZZZ	1		
18:16	ZZZZZZ	1		
18:22	ZZZZZZ	1		
18:28	JB99970-1	1		
18:34	JB99970-2	1		
18:40	JB99970-3	1		
----->	Last reportable sample/prep for job JB99970			
18:46	MA37212-CCV7	1		
19:49	MA37212-CCB8	1		
19:57	MA37212-CRI2	1		
20:03	MA37212-CRID3	1		
20:15	MA37212-CRIA2	1		
20:30	MA37212-ICSA2	1		
20:38	MA37212-ICSAB2	1		
20:46	MA37212-CCV8	1		
20:52	MA37212-CCB9	1		
----->	Last reportable CCB for job JB99970 Refer to raw data for calibration curve and standards.			

10.2  
10

INTERNAL STANDARD SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 Analyst: MS Run ID: MA37212  
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
10:00	MA37212-STD1	1839 R	45969 R	20067 R	7185 R
10:06	MA37212-STD2	1699	41781	19481	6293
10:12	ZZZZZZ	1760	43112	19768	6582
10:18	ZZZZZZ	1842	44985	19977	7194
10:25	MA37212-ICV1	1739	43241	19848	6527
10:54	MA37212-ICB1	1836	46092	21149	7187
10:59	MA37212-ICCV1	1699	43102	19868	6405
11:09	MA37212-CCB1	1802	45554	20124	7100
11:15	MA37212-CRI1	1783	44839	19927	6970
11:21	ZZZZZZ	1793	999999 !	20140	7062
11:27	MA37212-CRID1	1802	45200	20195	7085
11:33	MA37212-CRIA1	1794	45300	20218	7063
11:39	MA37212-ICSA1	1551	38804	19025	5659
11:46	MA37212-ICSAB1	1542	38884	18982	5630
11:52	ZZZZZZ	1754	44455	20073	7031
11:58	ZZZZZZ	1765	45442	20194	7054
12:04	ZZZZZZ	1823	999999 !	20333	7163
12:10	MA37212-CCV1	1725	42770	19967	6497
12:16	MA37212-CCB2	1843	45929	20275	7244
12:22	MA37212-CRID2	1824	45379	20283	7149
12:28	MP87990-MB1	1789	46252	19980	7069
12:34	MP87990-MB2	1814	45557	20205	7184
12:40	MP87990-B1	1727	43658	20691	6634
12:46	MP87990-B2	1716	43805	20231	6574
12:52	MP87990-S1	1706	42877	19592	6496
12:58	MP87990-S2	1700	42923	20193	6483
13:03	JB99964-3	1753	44622	20393	6800
13:09	MP87990-SD1	No results reported for the elements associated with this internal standard.			
13:15	MA37212-CCV2	1688	42854	20103	6396
13:21	MA37212-CCB3	1759	45705	20553	6988
13:27	MP87990-SD1	1766	45572	20614	7002
13:33	ZZZZZZ	1666	43277	20373	6609
13:39	ZZZZZZ	1653	42375	20365	6418

10.2.1  
10

INTERNAL STANDARD SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 Analyst: MS Run ID: MA37212  
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
13:45	ZZZZZZ	1679	43406	20451	6483
13:51	ZZZZZZ	1694	43594	20320	6637
13:57	ZZZZZZ	1692	44202	20631	6754
14:03	ZZZZZZ	1673	43329	20577	6546
14:09	ZZZZZZ	1707	44422	20585	6723
14:15	ZZZZZZ	1712	43868	20469	6703
14:21	MA37212-CCV3	1677	42748	20115	6387
14:27	MA37212-CCB4	1755	45586	20619	7009
14:33	ZZZZZZ	1735	45665	20792	6976
14:39	ZZZZZZ	1671	43722	20540	6633
14:45	ZZZZZZ	1660	40648	20399	6492
14:51	ZZZZZZ	1697	44017	20648	6698
14:57	ZZZZZZ	1679	43418	20434	6546
15:03	ZZZZZZ	1674	43044	20520	6582
15:09	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:15	ZZZZZZ	1693	43342	20513	6640
15:21	ZZZZZZ	1716	44493	20618	6794
15:28	MA37212-CCV4	1665	43172	20396	6361
15:33	MA37212-CCB5	1772	46055	20928	7087
15:39	ZZZZZZ	1691	44495	20836	6791
15:46	ZZZZZZ	1713	44134	20531	6721
15:52	ZZZZZZ	1744	46031	20819	6991
15:58	MP87966-MB1	1749	45973	20811	7043
16:04	MP87966-B1	1735	45215	20776	6914
16:10	MP87966-S1	1642	41605	20066	6141
16:15	MP87966-S2	1650	41653	20233	6157
16:21	JB99786-1	1631	41557	20167	6150
16:28	MP87966-SD1	1724	44355	20527	6746
16:34	MA37212-CCV5	1685	43201	20335	6434
16:39	MA37212-CCB6	1763	46430	20910	7066
16:45	ZZZZZZ	No results reported for the elements associated with this internal standard.			
16:52	ZZZZZZ	1625	41314	20089	6091
16:58	ZZZZZZ	1674	41911	20482	6352

10.2.1  
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INTERNAL STANDARD SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 Analyst: MS Run ID: MA37212  
 Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:04	ZZZZZ	1568	40762	20050	6064
17:10	MP87967-MB1	1663	42093	20388	6264
17:16	MP87967-B1	1680	42079	20362	6281
17:22	MP87967-S1	1662	42047	20128	6229
17:28	MP87967-S2	1702	42197	20250	6344
17:34	JB99796-1	1682	41947	19718	6282
17:40	MA37212-CCV6	1711	43620	20325	6517
17:46	MA37212-CCB7	1817	46577	20822	7258
17:52	MP87967-SD1	1745	44870	20663	6786
17:58	ZZZZZ	1754	999999 !	21074	7096
18:04	ZZZZZ	1710	44340	20850	6666
18:10	ZZZZZ	1751	45581	21072	6890
18:16	ZZZZZ	1724	44753	21437	6493
18:22	ZZZZZ	1777	46111	21316	6974
18:28	JB99970-1	1723	44846	21282	6811
18:34	JB99970-2	1738	45169	21323	6705
18:40	JB99970-3	1842	47601	22133	6877
18:46	MA37212-CCV7	1709	43744	20503	6506
19:49	MA37212-CCB8	1920	47599	20958	7442
19:57	MA37212-CRI2	1914	46971	20514	7279
20:03	MA37212-CRID3	1938	47689	19755	7419
20:15	MA37212-CRIA2	1957	47843	20630	7465
20:30	MA37212-ICSA2	1686	41206	18956	5967
20:38	MA37212-ICSAB2	1683	41035	19818	5966
20:46	MA37212-CCV8	1868	45110	20433	6837
20:52	MA37212-CCB9	1937	48438	20895	7420

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

10.2.1  
10

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37212 Units: ug/l

Metal	Time:		10:54	11:09		12:16	13:21			
	Sample ID:	RL	ICB1	final	CCB1	final	CCB2	final	CCB3	final
Aluminum	200	14								
Antimony	6.0	1.1								
Arsenic	3.0	.96	anr							
Barium	200	.3	anr							
Beryllium	1.0	.18								
Bismuth	20	1.5								
Boron	100	2.2								
Cadmium	3.0	.35	anr							
Calcium	5000	28								
Chromium	10	.4	anr							
Cobalt	50	.28	anr							
Copper	10	.57	anr							
Iron	100	7.2	anr							
Lead	3.0	.98	-0.10	<3.0	0.30	<3.0	-0.10	<3.0	0.20	<3.0
Lithium	20	2.7								
Magnesium	5000	29								
Manganese	15	.23	anr							
Molybdenum	20	.39	anr							
Nickel	10	.3	anr							
Palladium	50	1.7								
Potassium	10000	58								
Selenium	10	1.9	anr							
Silicon	200	3.5								
Silver	10	.53	anr							
Sodium	10000	18								
Sulfur	50	2.5								
Strontium	10	.23								
Thallium	2.0	1.8								
Tin	10	.88								
Titanium	10	.45								
Tungsten	50	1.5								
Vanadium	50	.37	anr							
Zinc	20	1.9	anr							

10.2.2 10

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37212 Units: ug/l

Time:			10:54		11:09		12:16		13:21	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final

Zirconium 10 .23

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.2.2  
 10

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37212 Units: ug/l

Metal	RL	IDL	14:27	15:33		16:39		17:46		
			CCB4	raw	final	raw	final	raw	final	raw
Aluminum	200	14								
Antimony	6.0	1.1								
Arsenic	3.0	.96	anr							
Barium	200	.3	anr							
Beryllium	1.0	.18								
Bismuth	20	1.5								
Boron	100	2.2								
Cadmium	3.0	.35	anr							
Calcium	5000	28								
Chromium	10	.4	anr							
Cobalt	50	.28	anr							
Copper	10	.57	anr							
Iron	100	7.2	anr							
Lead	3.0	.98	0.30	<3.0	0.10	<3.0	0.30	<3.0	0.90	<3.0
Lithium	20	2.7								
Magnesium	5000	29								
Manganese	15	.23	anr							
Molybdenum	20	.39	anr							
Nickel	10	.3	anr							
Palladium	50	1.7								
Potassium	10000	58								
Selenium	10	1.9	anr							
Silicon	200	3.5								
Silver	10	.53	anr							
Sodium	10000	18								
Sulfur	50	2.5								
Strontium	10	.23								
Thallium	2.0	1.8								
Tin	10	.88								
Titanium	10	.45								
Tungsten	50	1.5								
Vanadium	50	.37	anr							
Zinc	20	1.9	anr							

10.2.2 10

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37212 Units: ug/l

Time:	14:27	15:33	16:39	17:46						
Sample ID:	CCB4	CCB5	CCB6	CCB7						
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final

Zirconium 10 .23

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.2.2  
 10

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37212 Units: ug/l

Metal	Time:		19:49		20:52	
	Sample ID:	RL	IDL	CCB8	CCB9	final
Aluminum	200	14				
Antimony	6.0	1.1				
Arsenic	3.0	.96	anr			
Barium	200	.3	anr			
Beryllium	1.0	.18				
Bismuth	20	1.5				
Boron	100	2.2				
Cadmium	3.0	.35	anr			
Calcium	5000	28				
Chromium	10	.4	anr			
Cobalt	50	.28	anr			
Copper	10	.57	anr			
Iron	100	7.2	anr			
Lead	3.0	.98	0.70	<3.0	1.1	<3.0
Lithium	20	2.7				
Magnesium	5000	29				
Manganese	15	.23	anr			
Molybdenum	20	.39	anr			
Nickel	10	.3	anr			
Palladium	50	1.7				
Potassium	10000	58				
Selenium	10	1.9	anr			
Silicon	200	3.5				
Silver	10	.53	anr			
Sodium	10000	18				
Sulfur	50	2.5				
Strontium	10	.23				
Thallium	2.0	1.8				
Tin	10	.88				
Titanium	10	.45				
Tungsten	50	1.5				
Vanadium	50	.37	anr			
Zinc	20	1.9	anr			

10.2.2 10

BLANK RESULTS SUMMARY  
 Part 1 - Initial and Continuing Calibration Blanks

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: result < RL Run ID: MA37212 Units: ug/l

Time:	19:49	20:52				
Sample ID:	CCB8	CCB9				
Metal	RL	IDL	raw	final	raw	final

Zirconium 10 .23

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.2.2  
 10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial Continuing Calibration Check

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
QC Limits: 95 to 105 % Recovery Run ID: MA37212 Units: ug/l

Time:	10:59
Sample ID: ICCV	ICCV1
Metal	True
Results	% Rec

Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Bismuth			
Boron			
Cadmium	anr		
Calcium			
Chromium	anr		
Cobalt	anr		
Copper	anr		
Iron	anr		
Lead	2000	2030	101.5
Lithium			
Magnesium			
Manganese	anr		
Molybdenum	anr		
Nickel	anr		
Palladium			
Potassium			
Selenium	anr		
Silicon			
Silver	anr		
Sodium			
Sulfur			
Strontium			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium	anr		
Zinc	anr		

10.2.3  
10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial Continuing Calibration Check

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP      Date Analyzed: 07/30/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 95 to 105 % Recovery      Run ID: MA37212      Units: ug/l

Time:	10:59		
Sample ID: ICCV	ICCV1		
Metal	True	Results	% Rec

Zirconium

(\*) Outside of QC limits  
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP      Date Analyzed: 07/30/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 95 to 105 % Recovery      Run ID: MA37212      Units: ug/l

Metal	Time:	10:25			12:10			13:15		
	Sample ID:	ICV	ICV1	% Rec	CCV	CCV1	% Rec	CCV	CCV2	% Rec
Aluminum										
Antimony										
Arsenic	anr									
Barium	anr									
Beryllium										
Bismuth										
Boron										
Cadmium	anr									
Calcium										
Chromium	anr									
Cobalt	anr									
Copper	anr									
Iron	anr									
Lead	2000	2020	101.0		2000	2000	100.0	2000	1980	99.0
Lithium										
Magnesium										
Manganese	anr									
Molybdenum	anr									
Nickel	anr									
Palladium										
Potassium										
Selenium	anr									
Silicon										
Silver	anr									
Sodium										
Sulfur										
Strontium										
Thallium										
Tin										
Titanium										
Tungsten										
Vanadium	anr									
Zinc	anr									

10.2.4 10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP      Date Analyzed: 07/30/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 95 to 105 % Recovery      Run ID: MA37212      Units: ug/l

	Time:								
Sample ID:	ICV	10:25 ICV1		CCV	12:10 CCV1		CCV	13:15 CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec

Zirconium

(\*) Outside of QC limits  
(anr) Analyte not requested



10.2.4 10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP      Date Analyzed: 07/30/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 95 to 105 % Recovery      Run ID: MA37212      Units: ug/l

Metal	Sample ID: CCV	14:21 CCV3		CCV	15:28 CCV4		CCV	16:34 CCV5	
		True	Results % Rec		True	Results % Rec		True	Results % Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	1980	99.0	2000	1980	99.0	2000	1960	98.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Palladium									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Sulfur									
Strontium									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

10.2.4 10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP      Date Analyzed: 07/30/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 95 to 105 % Recovery      Run ID: MA37212      Units: ug/l

	Time:								
Sample ID:	CCV	14:21	CCV3	CCV	15:28	CCV4	CCV	16:34	CCV5
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec

Zirconium

(\*) Outside of QC limits  
(anr) Analyte not requested



10.2.4 10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP      Date Analyzed: 07/30/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 95 to 105 % Recovery      Run ID: MA37212      Units: ug/l

Metal	Sample ID: CCV	17:40		CCV	18:46		CCV	20:46	
		CCV6	Results % Rec		CCV7	Results % Rec		CCV8	Results % Rec
Aluminum	True			True			True		
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	1950	97.5	2000	1950	97.5	2000	1970	98.5
Lithium									
Magnesium									
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Palladium									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Sulfur									
Strontium									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium	anr								
Zinc	anr								

10.2.4 10

CALIBRATION CHECK STANDARDS SUMMARY  
Initial and Continuing Calibration Checks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP      Date Analyzed: 07/30/15      Methods: EPA 200.7, SW846 6010C  
QC Limits: 95 to 105 % Recovery      Run ID: MA37212      Units: ug/l

	Time:								
	Sample ID:	CCV	17:40 CCV6	CCV	18:46 CCV7	CCV	20:46 CCV8	CCV	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec

Zirconium

(\*) Outside of QC limits  
(anr) Analyte not requested



10.2.4 10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: 70 to 130 % Recovery Run ID: MA37212 Units: ug/l

Time:	11:15	11:27	11:33						
Sample ID:	CRI1	CRID1	CRIA1	Results	% Rec	Results	% Rec	Results	% Rec
Metal	True	True	True						
Aluminum	200	500	100						
Antimony	6.0	20	3.0						
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0						
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000						
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.5	116.7	2.5	100.0	19.8	99.0
Lithium	20								
Magnesium	5000	2000	100						
Manganese	15		3.0	anr					
Molybdenum	20			anr					
Nickel	10		4.0	anr					
Palladium	50								
Potassium	5000		2000						
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000						
Sulfur	50								
Strontium	10								
Thallium	10		2.0						
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					
Zinc	20		10	anr					

10.2.5  
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: 70 to 130 % Recovery Run ID: MA37212 Units: ug/l

Time:	11:15	11:27	11:33
Sample ID:	CRI1	CRID1	CRI1A1
Metal	True	True	True
	Results	% Rec	Results
			% Rec

Zirconium 10

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.2.5  
 10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: 70 to 130 % Recovery Run ID: MA37212 Units: ug/l

Time:				12:22			19:57			20:03	
Sample ID:	CRI	CRIA	CRID	CRID2	% Rec	Results	% Rec	Results	% Rec	Results	% Rec
Metal	True	True	True	Results	% Rec						
Aluminum	200	500	100								
Antimony	6.0	20	3.0								
Arsenic	8.0	20	3.0	anr							
Barium	200		4.0	anr							
Beryllium	2.0		1.0								
Bismuth	20										
Boron	100		10								
Cadmium	3.0		1.0	anr							
Calcium	5000	2000	1000								
Chromium	10		2.0	anr							
Cobalt	50		3.0	anr							
Copper	10		2.0	anr							
Iron	100	500									
Lead	3.0	20	2.5			3.8	126.7	2.8		112.0	
Lithium	20										
Magnesium	5000	2000	100								
Manganese	15		3.0	anr							
Molybdenum	20										
Nickel	10		4.0	anr							
Palladium	50										
Potassium	5000		2000								
Selenium	10	20	5.0	anr							
Silicon	200										
Silver	5.0		2.0	anr							
Sodium	5000		1000								
Sulfur	50										
Strontium	10										
Thallium	10		2.0								
Tin	10										
Titanium	10										
Tungsten	50										
Vanadium	50		2.0	anr							
Zinc	20		10	anr							

10.2.5  
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: 70 to 130 % Recovery Run ID: MA37212 Units: ug/l

Time:	12:22	19:57	20:03
Sample ID:	CRID2	CRI2	CRID3
Metal	Results % Rec	Results % Rec	Results % Rec

Zirconium 10

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.2.5  
 10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: 70 to 130 % Recovery Run ID: MA37212 Units: ug/l

Time:	Sample ID:	CRI	CRIA	CRID	20:15 CRIA2	Results	% Rec
Metal		True	True	True			
Aluminum		200	500	100			
Antimony		6.0	20	3.0			
Arsenic		8.0	20	3.0	anr		
Barium		200		4.0			
Beryllium		2.0		1.0			
Bismuth		20					
Boron		100		10			
Cadmium		3.0		1.0			
Calcium		5000	2000	1000			
Chromium		10		2.0			
Cobalt		50		3.0			
Copper		10		2.0			
Iron		100	500		anr		
Lead		3.0	20	2.5	20.0	100.0	
Lithium		20					
Magnesium		5000	2000	100			
Manganese		15		3.0			
Molybdenum		20					
Nickel		10		4.0			
Palladium		50					
Potassium		5000		2000			
Selenium		10	20	5.0	anr		
Silicon		200					
Silver		5.0		2.0			
Sodium		5000		1000			
Sulfur		50					
Strontium		10					
Thallium		10		2.0			
Tin		10					
Titanium		10					
Tungsten		50					
Vanadium		50		2.0			
Zinc		20		10			

10.2.5  
10

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: 70 to 130 % Recovery Run ID: MA37212 Units: ug/l

Time:	20:15			
Sample ID:	CRI	CRIA	CRID	CRIA2
Metal	True	True	True	Results % Rec

Zirconium 10

(\*) Outside of QC limits  
 (anr) Analyte not requested

10.2.5  
 10

INTERFERING ELEMENT CHECK STANDARDS SUMMARY  
Part 1 - ICSA and ICSAB Standards

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
QC Limits: 80 to 120 % Recovery Run ID: MA37212 Units: ug/l

Time:	11:39		11:46		20:30		20:38			
Sample ID:	ICSA	ICSAB	ICSAL	% Rec	ICSAB1	% Rec	ICSA2	% Rec	ICSAB2	% Rec
Metal	True	True	Results		Results		Results		Results	
Aluminum	500000	500000	501000	100.2	498000	99.6	479000	95.8	461000	92.2
Antimony		1000	-3.3		1050	105.0	-2.0		986	98.6
Arsenic		1000	3.5		1020	102.0	2.3		972	97.2
Barium		500	-0.30		500	100.0	-0.20		465	93.0
Beryllium		500	0.10		493	98.6	0.0		461	92.2
Bismuth		500	4.9		521	104.2	4.2		484	96.8
Boron			-3.8		-10		-4.4		-11	
Cadmium		1000	-2.2		1030	103.0	-2.4		976	97.6
Calcium	400000	400000	357000	89.3	355000	88.8	371000	92.8	346000	86.5
Chromium		500	1.4		478	95.6	1.4		463	92.6
Cobalt		500	-0.30		479	95.8	0.20		470	94.0
Copper		500	6.7		523	104.6	7.1		489	97.8
Iron	200000	200000	178000	89.0	174000	87.0	183000	91.5	170000	85.0
Lead		1000	0.80		919	91.9	-1.4		906	90.6
Lithium		500	11.4		533	106.6	4.6		465	93.0
Magnesium	500000	500000	511000	102.2	499000	99.8	531000	106.2	490000	98.0
Manganese		500	-2.2		484	96.8	-0.50		467	93.4
Molybdenum		500	-0.30		479	95.8	-0.40		453	90.6
Nickel		1000	0.40		952	95.2	0.70		932	93.2
Palladium		500	-14		530	106.0	-12		500	100.0
Potassium			17.0		19.8		32.3		24.7	
Selenium		1000	-6.7		1050	105.0	-2.0		991	99.1
Silicon			-18		-22		-16		-21	
Silver		1000	5.6		1020	102.0	9.4		982	98.2
Sodium			23.6		27.6		-4.0		-5.8	
Sulfur		500	40.2		522	104.4	36.3		501	100.2
Strontium			6.3		6.0		4.7		5.0	
Thallium		1000	-2.4		894	89.4	1.5		884	88.4
Tin			4.3		2.5		1.3		2.7	
Titanium			1.5		5.1		1.5		4.5	
Tungsten		500	15.9		509	101.8	15.2		480	96.0
Vanadium		500	1.4		475	95.0	1.4		461	92.2
Zinc		1000	-4.2		911	91.1	-3.9		889	88.9

10.2.6  
10

INTERFERING ELEMENT CHECK STANDARDS SUMMARY  
 Part 1 - ICSA and ICSAB Standards

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

File ID: SB073015M1.ICP Date Analyzed: 07/30/15 Methods: EPA 200.7, SW846 6010C  
 QC Limits: 80 to 120 % Recovery Run ID: MA37212 Units: ug/l

Time:	11:39	11:46	20:30	20:38
Sample ID:	ICSAB	ICSAB1	ICSAB2	ICSAB2
Metal	True	True	True	True
	Results	% Rec	Results	% Rec

Zirconium	500	-1.0	426	85.2	-0.20	402	80.4
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(\*) Outside of QC limits  
 (anr) Analyte not requested

10.2.6  
 10

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

QC Batch ID: MP87962  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 07/28/15

Metal	RL	IDL	MDL	MB raw	final
Aluminum	47	.98	3.1		
Antimony	1.9	.23	.29		
Arsenic	1.9	.24	.13		
Barium	19	.019	.051		
Beryllium	0.19	.0095	.039		
Bismuth	1.9	.26	.35		
Boron	9.5	.19	.41		
Cadmium	0.47	.038	.048		
Calcium	470	.43	2.6		
Chromium	0.95	.085	.094		
Cobalt	4.7	.038	.038		
Copper	2.4	.1	.13		
Iron	47	.16	3.1		
Lead	1.9	.16	.23	0.038	<1.9
Lithium	1.9	.14	.31		
Magnesium	470	2	8.5		
Manganese	1.4	.0095	.034		
Molybdenum	1.9	.057	.14		
Nickel	3.8	.047	.091		
Palladium	4.7	.19	.35		
Potassium	950	2.8	7		
Selenium	1.9	.25	.24		
Silicon	19	.18	1.6		
Silver	0.47	.076	.17		
Sodium	950	.89	1.4		
Strontium	0.95	.0095	.032		
Sulfur	4.7	.39	.66		
Thallium	0.95	.18	.18		
Tin	4.7	.12	1.1		
Titanium	0.95	.1	.2		
Tungsten	4.7	.18	.41		
Vanadium	4.7	.066	.071		
Zinc	4.7	.028	.73		

10.3.1  
10

BLANK RESULTS SUMMARY  
Part 2 - Method Blanks

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

QC Batch ID: MP87962  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 07/28/15

Metal	RL	IDL	MDL	MB raw	final
-------	----	-----	-----	-----------	-------

Zirconium 1.9 .028 .1

Associated samples MP87962: JB99970-1, JB99970-2, JB99970-3

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

10.3.1  
10

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

QC Batch ID: MP87962  
 Matrix Type: SOLID

Methods: SW846 6010C  
 Units: mg/kg

Prep Date: 07/28/15

Metal	JB99498-88 Original MS	SpikeLot MPSPK1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	anr			
Copper				
Iron				
Lead	2.7	214	207	102.3 75-125
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Palladium				
Potassium				
Selenium				
Silicon				
Silver	anr			
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium	anr			
Zinc	anr			

10.3.2  
10

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

QC Batch ID: MP87962  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 07/28/15

Metal	JB99498-88 Original MS	SpikeLot MPSPK1	% Rec	QC Limits
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Zirconium

Associated samples MP87962: JB99970-1, JB99970-2, JB99970-3

Results < IDL are shown as zero for calculation purposes

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

(anr) Analyte not requested

10.3.2  
10

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

QC Batch ID: MP87962  
 Matrix Type: SOLID

Methods: SW846 6010C  
 Units: mg/kg

Prep Date: 07/28/15

Metal	JB99498-88 Original MSD	SpikeLot MPSPK1	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic	anr					
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt	anr					
Copper						
Iron						
Lead	2.7	211	208	100.3	1.4	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel	anr					
Palladium						
Potassium						
Selenium						
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium	anr					
Zinc	anr					

10.3.2  
10

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

QC Batch ID: MP87962  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 07/28/15

Metal	JB99498-88 Original MSD	SpikeLot MPSPK1	% Rec	MSD RPD	QC Limit
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Zirconium

Associated samples MP87962: JB99970-1, JB99970-2, JB99970-3

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(N) Matrix Spike Rec. outside of QC limits  
(anr) Analyte not requested

10.3.2  
10

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

QC Batch ID: MP87962  
 Matrix Type: SOLID

Methods: SW846 6010C  
 Units: mg/kg

Prep Date: 07/28/15

Metal	BSP Result	Spikelot MPSPK1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	anr			
Copper				
Iron				
Lead	184	196	93.8	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Palladium				
Potassium				
Selenium				
Silicon				
Silver	anr			
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium	anr			
Zinc	anr			

10.3.3  
10

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

QC Batch ID: MP87962  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: mg/kg

Prep Date: 07/28/15

Metal	BSP Result	Spikelot MPSPK1	% Rec	QC Limits
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Zirconium

Associated samples MP87962: JB99970-1, JB99970-2, JB99970-3

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

10.3.3  
10

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB99970  
 Account: SECORPAE - Stantec Consulting Services Inc.  
 Project: MHIC-Tank 616-619, Marcus Hook, PA

QC Batch ID: MP87962  
 Matrix Type: SOLID

Methods: SW846 6010C  
 Units: ug/l

Prep Date: 07/28/15

Metal	JB99498-88 Original SDL 1:5	%DIF	QC Limits
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Aluminum				
Antimony				
Arsenic	anr			
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt	anr			
Copper				
Iron				
Lead	25.0	22.8	8.8	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel	anr			
Palladium				
Potassium				
Selenium				
Silicon				
Silver	anr			
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium	anr			
Zinc	anr			

10.3.4  
10

SERIAL DILUTION RESULTS SUMMARY

Login Number: JB99970  
Account: SECORPAE - Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

QC Batch ID: MP87962  
Matrix Type: SOLID

Methods: SW846 6010C  
Units: ug/l

Prep Date: 07/28/15

	JB99498-88		QC
Metal	Original SDL 1:5	%DIF	Limits

Zirconium

Associated samples MP87962: JB99970-1, JB99970-2, JB99970-3

Results < IDL are shown as zero for calculation purposes  
(\* ) Outside of QC limits  
(anr) Analyte not requested

10.3.4  
10

## General Chemistry

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### QC Data Summaries

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**Includes the following where applicable:**

- Percent Solids Raw Data Summary



# Percent Solids Raw Data Summary

Job Number: JB99970  
Account: SECORPAE Stantec Consulting Services Inc.  
Project: MHIC-Tank 616-619, Marcus Hook, PA

---

Sample: JB99970-1      Analyzed: 28-JUL-15 by KP      Method: SM2540 G-97  
ClientID: MH-617-6-5

Wet Weight (Total)	31.62	g
Tare Weight	23.77	g
Dry Weight (Total)	29.55	g
Solids, Percent	73.6	%

---

Sample: JB99970-2      Analyzed: 28-JUL-15 by KP      Method: SM2540 G-97  
ClientID: MH-619-6-5

Wet Weight (Total)	33.4	g
Tare Weight	26.45	g
Dry Weight (Total)	32.61	g
Solids, Percent	88.6	%

---

Sample: JB99970-3      Analyzed: 28-JUL-15 by KP      Method: SM2540 G-97  
ClientID: MH-618-1-3

Wet Weight (Total)	30.21	g
Tare Weight	22.71	g
Dry Weight (Total)	29.3	g
Solids, Percent	87.9	%

---

11.1  
11

## Misc. Forms

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### Custody Documents and Other Forms

(Accutest Laboratories Southeast, Inc.)

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**Includes the following where applicable:**

- Chain of Custody
- Sample Tracking Chronicle



**ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION**

ACCUTEST'S JOB NUMBER: JB 99970 CLIENT: ALNJ PROJECT: MHC-tank  
 DATE/TIME RECEIVED: 072915 1045 (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 1  
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER DELIVERY OTHER: \_\_\_\_\_  
 AIRBILL NUMBERS: 5633 9348 3766

**COOLER INFORMATION**

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET

**TRIP BLANK INFORMATION**

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

**MISC. INFORMATION**

NUMBER OF ENCORES ? 25-GRAM \_\_\_\_\_ 5-GRAM \_\_\_\_\_  
 NUMBER OF 5035 FIELD KITS ? \_\_\_\_\_  
 NUMBER OF LAB FILTERED METALS ? \_\_\_\_\_

**TEMPERATURE INFORMATION**

IR THERM ID 1 CORR. FACTOR 0.2  
 OBSERVED TEMPS: 3.0  
 CORRECTED TEMPS: 2.8

**SAMPLE INFORMATION**

- INCORRECT NUMBER OF CONTAINERS USED
- SAMPLE RECEIVED IMPROPERLY PRESERVED
- INSUFFICIENT VOLUME FOR ANALYSIS
- DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- ID'S ON COC DO NOT MATCH LABEL
- VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- SAMPLE CONTAINER(S) RECEIVED BROKEN
- 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- % SOLIDS JAR NOT RECEIVED
- RESIDUAL CHLORINE PRESENT LOT# \_\_\_\_\_

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

PH PAPER LOT# WIDE RANGE A036122 NARROW RANGE HC421754 OTHER (specify) 405-230010

SUMMARY OF COMMENTS: 1 Vial for trip Blank

TECHNICIAN SIGNATURE/DATE RW 073015 REVIEWER SIGNATURE/DATE JG 7.30-15

NF 10/14

receipt confirmation 102914.xls

12.1  
12

ORIGIN: 101-2RPA (732) 328-0200  
SAMPLE NO: 101  
ACCUTEST  
2295 US HIGHWAY 130  
DAYTON, NJ 08810  
UNITED STATES US  
SHIP DATE: 28JUL15  
CWT: 44.0 LB  
CART: 0743430/CAFE2607  
BILL SENDER

TO SAMPLE MANAGEMENT  
ACCUTEST LABORATORIES  
4405 VINELAND ROAD  
SUITE C - 15  
ORLANDO, FL 32811  
(407) 425-6700  
REF: JB99970



WED - 29 JUL 10:30A  
PRIORITY OVERNIGHT

5633 9348 3766

XH TIXA

32811  
FL-US MCO



JB99970: Chain of Custody  
Page 3 of 6

2235 Route 130, Dayton, NJ 08810  
TEL: 732-329-0200 FAX: 732-329-3499/3480  
www.accutest.com

<b>Client / Reporting Information</b> Company Name: <b>Accutest Laboratories</b> Street Address: <b>2235 Route 130</b> City: <b>Dayton</b> State: <b>NJ</b> Zip: <b>08810</b> Project Contact: <b>marlem</b> E-mail: <b>marlem@accutest.com</b> Phone #: <b>732-329-0200</b> Fax #: Sampler(s) Name(s): <b>DH/CD</b>		<b>Project Information</b> Project Name: <b>MHIC-Tank 616-619, Marcus Hook, PA</b> Billing Information (if different from Report to): Project #: _____ Street Address: _____ City: _____ State: _____ Zip: _____ Attention: _____		FED-EX Tracking # _____ Accutest Quote # _____ Bottle Order Control # _____ Accutest Job # <b>JB99970</b>							
<b>Requested Analysis (see TEST CODE sheet)</b>		<b>Matrix Codes</b> DW - Drinking Water GW - Ground Water WW - Wastewater SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank									
<b>Accutest Sample #</b> Field ID / Point of Collection	<b>MEOH/DI Vial #</b>	<b>Date</b>	<b>Time</b>	<b>Sampled by</b> Mtrbr:	<b># of bottles</b>	<b>Number of preserved bottles</b> PCR MCHH IPRHQ IPRSQ NONE DI Value MEOH ENCODE				<b>LAB USE ONLY</b>	
4	AOI-S-BH-15-6_0-2_20150724	7/24/15	12:25:00 PM	DH/CD	SO 1						X
5	AOI-S-BH-15-6_7_20150724	7/24/15	12:40:00 PM	DH/CD	SO 1						X
6	AOI-S-BH-15-7_0-2_20150724	7/24/15	11:20:00 AM	DH/CD	SO 1						X
7	AOI-S-BH-15-7_6-8_20150724	7/24/15	11:50:00 AM	DH/CD	SO 1						X
8	AOI-S-BH-15-6_0-2_20150724	7/24/15	1:10:00 PM	DH/CD	SO 1						X
9	AOI-S-BH-15-6_9-8_5_20150724	7/24/15	1:40:00 PM	DH/CD	SO 1						X
10	AOI-S-BH-15-10_0-2_20150724	7/24/15	2:00:00 PM	DH/CD	SO 1						X
<b>Turnaround Time (Business days)</b>		<b>Data Deliverable Information</b> <input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY <input checked="" type="checkbox"/> other Due 8/7/2015 <small>Emergency &amp; Rush T/A data available VIA Lablink</small>				<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> FULLT1 (Level 3+4) <input type="checkbox"/> NJ Reduced <input type="checkbox"/> Commercial "C" <input type="checkbox"/> NYASP Category A <input type="checkbox"/> NYASP Category B <input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input checked="" type="checkbox"/> Other REDT2 <small>Commercial "A" = Results Only Commercial "B" = Results + QC Summary NJ Reduced = Results + QC Summary + Partial Raw data</small>				<b>Comments / Special Instructions</b> Samples JB99970-1 to 3 and 11A were sent previously.	
<b>Sample Custody must be documented below each time samples change possession, including courier delivery.</b>											
Relinquished by: <b>1</b> <i>[Signature]</i>	Date/Time: <b>7/24/15 17:00</b>	Received By: <b>1</b> <b>Fed Ex</b>	Relinquished By: <b>2</b> <b>FP 07-30-15</b>	Date/Time: <b>900</b>	Received By: <b>2</b> <i>[Signature]</i>						
Relinquished by: <b>3</b>	Date/Time:	Received By: <b>3</b>	Relinquished By: <b>4</b>	Date/Time:	Received By: <b>4</b>						
Relinquished by: <b>5</b>	Date/Time:	Received By: <b>5</b>	Custody Seal # <b>547</b> <input type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Preserved where applicable: <input type="checkbox"/>	On Ice: <input type="checkbox"/>						

12.1  
12

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: JB99970 CLIENT: ALNJ PROJECT: MHC-tank  
 DATE/TIME RECEIVED: 07-30-15 9:00 (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 1  
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER DELIVERY OTHER: \_\_\_\_\_  
 AIRBILL NUMBERS: 5633 9348 3799

**COOLER INFORMATION**

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET

**TEMPERATURE INFORMATION**

- IR THERM ID 1 CORR. FACTOR 0.2
- OBSERVED TEMPS: 30
- CORRECTED TEMPS: 28

**TRIP BLANK INFORMATION**

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

**SAMPLE INFORMATION**

- INCORRECT NUMBER OF CONTAINERS USED
- SAMPLE RECEIVED IMPROPERLY PRESERVED
- INSUFFICIENT VOLUME FOR ANALYSIS
- DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- ID'S ON COC DO NOT MATCH LABEL
- VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- SAMPLE CONTAINER(S) RECEIVED BROKEN
- 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- % SOLIDS JAR NOT RECEIVED
- RESIDUAL CHLORINE PRESENT LOT# \_\_\_\_\_

**MISC. INFORMATION**

NUMBER OF ENCORES ? 25-GRAM 5-GRAM  
 NUMBER OF 5035 FIELD KITS ? \_\_\_\_\_  
 NUMBER OF LAB FILTERED METALS ? \_\_\_\_\_

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

pH PAPER LOT# WIDE RANGE A036122 NARROW RANGE HC421754 OTHER (specify) 405-230010

SUMMARY OF COMMENTS: \_\_\_\_\_

TECHNICIAN SIGNATURE/DATE RW 07-31-15 REVIEWER SIGNATURE/DATE JC 7-31-15

NF 10/14

receipt confirmation 102914.xls

JB99970: Chain of Custody

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ORIGIN: 1012RPA (732) 329-0200  
SHIP DATE: 28 JUL 15  
ACCUTEST INST.  
2235 US HIGHWAY 130  
DAYTON, NJ 08810  
UNITED STATES US  
BILL SENDER

SHIP DATE: 28 JUL 15  
WT: 2.8 LB  
DIM: 07.6300/07FE2807

521CL/9556/13125

TO  
**SAMPLE MANAGEMENT**  
**ACCUTEST LABORATORIES**  
**4405 VINELAND ROAD**  
**SUITE C-15**  
**ORLANDO FL 32811**  
(407) 426-8700  
REF: JB99970



THU - 30 JUL 10:30A  
PRIORITY OVERNIGHT

TRAK  
5633 9348 3799

**XH TIXA**

32811  
FL-US MCO



Part # 159149-424 Pkg 2 of 2

### Internal Sample Tracking Chronicle

Accutest New Jersey

Job No: JB99970

SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA  
 Project No: SECORPAE65217

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JB99970-1 Collected: 24-JUL-15 08:40 By: DH/CD Received: 24-JUL-15 By: RW MH-617-6-5						
JB99970-1	SW846 8011M	01-AUG-15 00:31	NG	31-JUL-15	NG	V8011EDB
JB99970-2 Collected: 24-JUL-15 09:00 By: DH/CD Received: 24-JUL-15 By: RW MH-619-6-5						
JB99970-2	SW846 8011M	01-AUG-15 00:46	NG	31-JUL-15	NG	V8011EDB
JB99970-3 Collected: 24-JUL-15 09:25 By: DH/CD Received: 24-JUL-15 By: RW MH-618-1-3						
JB99970-3	SW846 8011M	01-AUG-15 01:01	NG	31-JUL-15	NG	V8011EDB
JB99970-11A Collected: 24-JUL-15 14:00 By: DH/CD Received: 24-JUL-15 By: RW TB_20150724						
JB99970-11A	SW846 8011	03-AUG-15 18:23	NG	03-AUG-15	NG	V8011EDB

12.2  
12

## GC Volatiles

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### QC Data Summaries

(Accutest Laboratories Southeast, Inc.)

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#### Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Surrogate Recovery Summaries
- GC Surrogate Retention Time Summaries
- Initial and Continuing Calibration Summaries

**Method Blank Summary**

Job Number: JB99970

Account: ALNJ Accutest New Jersey

Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP57066-MB	DD83515.D	1	07/31/15	NG	07/31/15	OP57066	GDD2459

The QC reported here applies to the following samples:

Method: SW846 8011M

JB99970-1, JB99970-2, JB99970-3

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.21	0.070	ug/kg	

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	107% 63-137%

**Method Blank Summary**

Job Number: JB99970

Account: ALNJ Accutest New Jersey

Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP57086-MB	DD83546.D	1	08/03/15	NG	08/03/15	OP57086	GDD2460

The QC reported here applies to the following samples:

Method: SW846 8011

JB99970-11A

CAS No.	Compound	Result	RL	MDL	Units	Q
106-93-4	1,2-Dibromoethane	ND	0.020	0.010	ug/l	

CAS No.	Surrogate Recoveries	Limits
460-00-4	4-Bromofluorobenzene	95% 63-137%

# Blank Spike Summary

Job Number: JB99970

Account: ALNJ Accutest New Jersey

Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP57066-BS	DD83514.D	1	07/31/15	NG	07/31/15	OP57066	GDD2459

The QC reported here applies to the following samples:

Method: SW846 8011M

JB99970-1, JB99970-2, JB99970-3

CAS No.	Compound	Spike ug/kg	BSP ug/kg	BSP %	Limits
106-93-4	1,2-Dibromoethane	1.75	1.7	97	72-134

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	109%	63-137%

\* = Outside of Control Limits.

# Blank Spike Summary

Job Number: JB99970

Account: ALNJ Accutest New Jersey

Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP57086-BS <sup>a</sup>	DD83545.D	1	08/03/15	NG	08/03/15	OP57086	GDD2460

The QC reported here applies to the following samples:

Method: SW846 8011

JB99970-11A

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
106-93-4	1,2-Dibromoethane	0.25	0.24	96	72-134

CAS No.	Surrogate Recoveries	BSP	Limits
460-00-4	4-Bromofluorobenzene	108%	63-137%

(a) Insufficient sample for MS/MSD.

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Job Number: JB99970

Account: ALNJ Accutest New Jersey

Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP57066-MS	DD83527.D	1	08/01/15	NG	07/31/15	OP57066	GDD2459
OP57066-MSD	DD83528.D	1	08/01/15	NG	07/31/15	OP57066	GDD2459
JB99715-1	DD83526.D	1	08/01/15	NG	07/31/15	OP57066	GDD2459

The QC reported here applies to the following samples:

Method: SW846 8011M

JB99970-1, JB99970-2, JB99970-3

CAS No.	Compound	JB99715-1 ug/kg	Spike Q ug/kg	MS ug/kg	MS %	Spike ug/kg	MSD ug/kg	MSD %	RPD	Limits Rec/RPD
106-93-4	1,2-Dibromoethane	ND	2.13	2.3	108	2.13	2.4	113	4	72-134/28

CAS No.	Surrogate Recoveries	MS	MSD	JB99715-1	Limits
460-00-4	4-Bromofluorobenzene	109%	112%	111%	63-137%

\* = Outside of Control Limits.

# Volatile Surrogate Recovery Summary

Job Number: JB99970

Account: ALNJ Accutest New Jersey

Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Method: SW846 8011

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 <sup>a</sup>
JB99970-11A	DD83548.D	104
OP57086-BS	DD83545.D	108
OP57086-MB	DD83546.D	95

Surrogate Compounds	Recovery Limits
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S1 = 4-Bromofluorobenzene	63-137%
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(a) Recovery from GC signal #1

# Volatile Surrogate Recovery Summary

Job Number: JB99970

Account: ALNJ Accutest New Jersey

Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Method: SW846 8011M

Matrix: SO

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1 <sup>a</sup>
JB99970-1	DD83523.D	115
JB99970-2	DD83524.D	116
JB99970-3	DD83525.D	115
OP57066-BS	DD83514.D	109
OP57066-MB	DD83515.D	107
OP57066-MS	DD83527.D	109
OP57066-MSD	DD83528.D	112

Surrogate Compounds	Recovery Limits
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S1 = 4-Bromofluorobenzene	63-137%
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(a) Recovery from GC signal #1

# GC Surrogate Retention Time Summary

Job Number: JB99970  
 Account: ALNJ Accutest New Jersey  
 Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Check Std:	GDD2460-CC2458	Injection Date:	08/03/15
Lab File ID:	DD83543.D	Injection Time:	17:07
Instrument ID:	GCDD	Method:	SW846 8011

S1<sup>a</sup>    S1<sup>b</sup>  
 RT      RT

Check Std	3.58	3.35
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S1 <sup>b</sup> RT
OP57086-BS	DD83545.D	08/03/15	17:38		3.35
OP57086-MB	DD83546.D	08/03/15	17:53		3.35
ZZZZZZ	DD83547.D	08/03/15	18:08		3.35
JB99970-11A	DD83548.D	08/03/15	18:23		3.35
GDD2460-ECC2458	DD83549.D	08/03/15	18:38	3.57	3.35

Surrogate Compounds

S1 = 4-Bromofluorobenzene

- (a) Retention time from GC signal #2
- (b) Retention time from GC signal #1

# GC Surrogate Retention Time Summary

Job Number: JB99970

Account: ALNJ Accutest New Jersey

Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Check Std:	GDD2459-CC2458	Injection Date:	07/31/15
Lab File ID:	DD83507.D	Injection Time:	20:28
Instrument ID:	GCDD	Method:	SW846 8011M

S1 <sup>a</sup>  
RT

Check Std	3.35
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT
ZZZZZZ	DD83509.D	07/31/15	20:58	3.35
ZZZZZZ	DD83510.D	07/31/15	21:13	3.35
JB99969-20	DD83511.D	07/31/15	21:29	3.35
OP57065-MS	DD83512.D	07/31/15	21:44	3.35
OP57065-MSD	DD83513.D	07/31/15	21:59	3.35
OP57066-BS	DD83514.D	07/31/15	22:14	3.35
OP57066-MB	DD83515.D	07/31/15	22:29	3.35
ZZZZZZ	DD83516.D	07/31/15	22:45	3.35
ZZZZZZ	DD83517.D	07/31/15	23:00	3.35
ZZZZZZ	DD83518.D	07/31/15	23:15	3.35

## Surrogate Compounds

S1 = 4-Bromofluorobenzene

(a) Retention time from GC signal #1

# GC Surrogate Retention Time Summary

Job Number: JB99970  
 Account: ALNJ Accutest New Jersey  
 Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Check Std:	GDD2459-CC2458	Injection Date:	07/31/15
Lab File ID:	DD83519.D	Injection Time:	23:30
Instrument ID:	GCDD	Method:	SW846 8011M

S1<sup>a</sup>    S1<sup>b</sup>  
 RT      RT

Check Std	3.57	3.35
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Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	S1 <sup>a</sup> RT	S1 <sup>b</sup> RT
ZZZZZZ	DD83521.D	08/01/15	00:01		3.35
ZZZZZZ	DD83522.D	08/01/15	00:16		3.35
JB99970-1	DD83523.D	08/01/15	00:31		3.35
JB99970-2	DD83524.D	08/01/15	00:46		3.35
JB99970-3	DD83525.D	08/01/15	01:01		3.35
JB99715-1	DD83526.D	08/01/15	01:16		3.35
OP57066-MS	DD83527.D	08/01/15	01:32		3.35
OP57066-MSD	DD83528.D	08/01/15	01:47		3.35
GDD2459-ECC2459	DD83529.D	08/01/15	02:02	3.57	3.35

## Surrogate Compounds

S1 = 4-Bromofluorobenzene

- (a) Retention time from GC signal #2
- (b) Retention time from GC signal #1

# Initial Calibration Summary

Job Number: JB99970  
Account: ALNJ Accutest New Jersey  
Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample: GDD2458-ICC2458  
Lab FileID: DD83445.D

## Response Factor Report ECD 4

Method : C:\msdchem\2\METHODS\EDB\_HY0729.M (Chemstation Integrator)  
Title : EDB/DBCP by EPA 504.1 or SW846 8011  
Last Update : Fri Jul 31 09:15:07 2015  
Response via : Initial Calibration

### Calibration Files

0.02=dd83443.D 0.10=dd83444.D 0.25=dd83445.D 0.50=dd83446.D  
0.75 =dd83447.D 1.0 =dd83448.D

Compound	0.02	0.10	0.25	0.50	0.75	1.0	Avg	%RSD
1) 1,2-Dibromoethane	2.199	2.335	2.360	2.164	2.107	1.980	2.191#E5	6.50
2) S 4-Bromofluorobenzen	2.330	2.258	2.448	2.230	2.220	2.173	2.277#E4	4.34
3) 1,2,3-Trichloroprop	4.400	4.930	4.995	4.596	4.464	4.336	4.620#E4	6.05
4) 1,2-Dibromo-3-chlor	7.942	7.338	7.197	6.842	6.917	7.341	7.263#E5	5.42

### Signal #2

1) 1,2-Dibromoethane	2.306	2.598	2.777	2.789	2.941	2.857	2.711#E6	8.43	---- Linear regr., Force(0,0) ---- Coefficient = 0.9994 Response Ratio = 0.00000 + 2846169.69508 *A
2) S 4-Bromofluorobenzen	2.036	2.168	2.545	2.552	2.706	2.812	2.470#E5	12.34	---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9998 Response Ratio = 0.00000 + 234311.64597 *A + 5882.88563 *A^2
3) 1,2,3-Trichloroprop	4.145	4.561	4.783	4.639	4.724	4.459	4.552#E5	5.06	
4) 1,2-Dibromo-3-chlor	0.963	0.999	1.151	1.239	1.376	1.489	1.203#E7	17.23	---- Quadratic regr., Force(0,0) ---- Coefficient = 0.9999 Response Ratio = 0.00000 + 10084802.29017 *A + 4817792.73257 *A^2

(#) = Out of Range

EDB\_HY0729.M

Fri Jul 31 10:04:56 2015

# Initial Calibration Verification

Job Number: JB99970  
Account: ALNJ Accutest New Jersey  
Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample: GDD2458-ICV2458  
Lab FileID: DD83449.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\0729edb\dd83449.D\ECD1A.CH Vial: 8  
Signal #2 : C:\msdchem\2\DATA\0729edb\dd83449.D\ECD2B.CH  
Acq On : 29 Jul 2015 12:36 pm Operator: natashag  
Sample : icv2458-0.10 Inst : ECD 4  
Misc : op56998,gdd2458,35.0,,,2,1,water Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\EDB\_HY0729.M (Chemstation Integrator)  
Title : EDB/DBCP by EPA 504.1 or SW846 8011  
Last Update : Fri Jul 31 09:15:07 2015  
Response via : Multiple Level Calibration

Min. RRF : 20.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	0.100	0.108	-8.0	102	0.00	2.48	2.58
2 S	4-Bromofluorobenzene			-----NA-----				
3	1,2,3-Trichloropropane	0.100	0.100	0.0	94	0.00	3.34	3.44
4	1,2-Dibromo-3-chloropr	0.100	0.103	-3.0	102	0.00	4.34	4.44

\*\*\*\*\* Signal #2 \*\*\*\*\*

1	1,2-Dibromoethane	0.100	0.092	8.0	101	0.00	2.74	2.84
2 S	4-Bromofluorobenzene			-----NA-----				
3	1,2,3-Trichloropropane	0.100	0.099	1.0	98	0.00	3.62	3.72
4	1,2-Dibromo-3-chloropr	0.100	0.096	4.0	102	0.00	4.74	4.84

(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
dd83444.D    EDB\_HY0729.M              Fri Jul 31 10:04:41 2015

13.62  
13

# Continuing Calibration Summary

Job Number: JB99970  
Account: ALNJ Accutest New Jersey  
Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample: GDD2459-CC2458  
Lab FileID: DD83507.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\0731edb\dd83507.D\ECD1A.CH Vial: 3  
Signal #2 : C:\msdchem\2\DATA\0731edb\dd83507.D\ECD2B.CH  
Acq On : 31 Jul 2015 8:28 pm Operator: natashag  
Sample : cc2458-0.25 Inst : ECD 4  
Misc : op57065,gdd2459,5.00,,,2,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\EDB\_HY0729.M (Chemstation Integrator)  
Title : EDB/DBCP by EPA 504.1 or SW846 8011  
Last Update : Fri Jul 31 09:15:07 2015  
Response via : Multiple Level Calibration

Min. RRF : 20.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	0.250	0.294	-17.6	109	0.00	2.48	2.58
2 S	4-Bromofluorobenzene	2.000	2.257	-12.9	105	0.00	3.30	3.40
3	1,2,3-Trichloropropane	0.250	0.287	-14.8	106	0.00	3.34	3.44
4	1,2-Dibromo-3-chloropr	0.250	0.289	-15.6	117	0.00	4.34	4.44

\*\*\*\*\* Signal #2 \*\*\*\*\*

		Amount	Calc.	%Drift				
1	1,2-Dibromoethane	0.250	0.248	0.8	102	0.00	2.74	2.84
2 S	4-Bromofluorobenzene	2.000	2.029	-1.4	98	0.00	3.52	3.62
3	1,2,3-Trichloropropane	0.250	0.259	-3.6	98	0.00	3.62	3.72
4	1,2-Dibromo-3-chloropr	0.250	0.263	-5.2	104	0.00	4.74	4.84

(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
dd83445.D    EDB\_HY0729.M              Mon Aug 03 11:08:45 2015

13.6.3  
13

# Continuing Calibration Summary

Job Number: JB99970  
Account: ALNJ Accutest New Jersey  
Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample: GDD2459-CC2458  
Lab FileID: DD83519.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\0731edb\dd83519.D\ECD1A.CH Vial: 3  
Signal #2 : C:\msdchem\2\DATA\0731edb\dd83519.D\ECD2B.CH  
Acq On : 31 Jul 2015 11:30 pm Operator: natashag  
Sample : cc2458-0.25 Inst : ECD 4  
Misc : op57066,gdd2459,5.00,,,2,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\EDB\_HY0729.M (Chemstation Integrator)  
Title : EDB/DBCP by EPA 504.1 or SW846 8011  
Last Update : Fri Jul 31 09:15:07 2015  
Response via : Multiple Level Calibration

Min. RRF : 20.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	0.250	0.275	-10.0	102	0.00	2.48	2.58
2 S	4-Bromofluorobenzene	2.000	2.228	-11.4	104	0.00	3.30	3.40
3	1,2,3-Trichloropropane	0.250	0.281	-12.4	104	0.00	3.34	3.44
4	1,2-Dibromo-3-chloropr	0.250	0.290	-16.0	117	0.00	4.34	4.44

\*\*\*\*\* Signal #2 \*\*\*\*\*

		Amount	Calc.	%Drift				
1	1,2-Dibromoethane	0.250	0.229	8.4	94	0.00	2.74	2.84
2 S	4-Bromofluorobenzene	2.000	2.026	-1.3	98	0.00	3.52	3.62
3	1,2,3-Trichloropropane	0.250	0.261	-4.4	99	0.00	3.62	3.72
4	1,2-Dibromo-3-chloropr	0.250	0.252	-0.8	99	0.00	4.74	4.84

(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
dd83445.D    EDB\_HY0729.M              Mon Aug 03 11:08:47 2015

13.64  
13

# Continuing Calibration Summary

Job Number: JB99970

Sample: GDD2459-ECC2458

Account: ALNJ Accutest New Jersey

Lab FileID: DD83529.D

Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\0731edb\dd83529.D\ECD1A.CH Vial: 3  
Signal #2 : C:\msdchem\2\DATA\0731edb\dd83529.D\ECD2B.CH  
Acq On : 01 Aug 2015 2:02 am Operator: natashag  
Sample : ecc2458-0.25 Inst : ECD 4  
Misc : op57066,gdd2459,5.00,,,2,1,soil Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\EDB\_HY0729.M (Chemstation Integrator)  
Title : EDB/DBCP by EPA 504.1 or SW846 8011  
Last Update : Fri Jul 31 09:15:07 2015  
Response via : Multiple Level Calibration

Min. RRF : 20.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	0.250	0.264	-5.6	98	0.00	2.48	2.58
2 S	4-Bromofluorobenzene	2.000	2.203	-10.1	102	0.00	3.30	3.40
3	1,2,3-Trichloropropane	0.250	0.281	-12.4	104	0.00	3.34	3.44
4	1,2-Dibromo-3-chloropr	0.250	0.298	-19.2	120	0.00	4.34	4.44

\*\*\*\*\* Signal #2 \*\*\*\*\*

		Amount	Calc.	%Drift				
1	1,2-Dibromoethane	0.250	0.218	12.8	89	0.00	2.74	2.84
2 S	4-Bromofluorobenzene	2.000	1.925	3.7	93	0.00	3.52	3.62
3	1,2,3-Trichloropropane	0.250	0.246	1.6	93	0.00	3.62	3.72
4	1,2-Dibromo-3-chloropr	0.250	0.271	-8.4	107	0.00	4.74	4.84

(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
dd83445.D    EDB\_HY0729.M              Mon Aug 03 11:08:49 2015

# Continuing Calibration Summary

Job Number: JB99970  
Account: ALNJ Accutest New Jersey  
Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample: GDD2460-CC2458  
Lab FileID: DD83543.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\0803edb\dd83543.D\ECD1A.CH Vial: 2  
Signal #2 : C:\msdchem\2\DATA\0803edb\dd83543.D\ECD2B.CH  
Acq On : 03 Aug 2015 5:07 pm Operator: natashag  
Sample : cc2458-0.25 Inst : ECD 4  
Misc : op57085,gdd2460,35.0,,,2,1,water Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\EDB\_HY0729.M (Chemstation Integrator)  
Title : EDB/DBCP by EPA 504.1 or SW846 8011  
Last Update : Fri Jul 31 09:15:07 2015  
Response via : Multiple Level Calibration

Min. RRF : 20.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	0.250	0.263	-5.2	98	0.00	2.48	2.58
2 S	4-Bromofluorobenzene	2.000	2.162	-8.1	101	0.00	3.30	3.40
3	1,2,3-Trichloropropane	0.250	0.272	-8.8	101	0.00	3.34	3.44
4	1,2-Dibromo-3-chloropr	0.250	0.271	-8.4	109	0.00	4.34	4.44

\*\*\*\*\* Signal #2 \*\*\*\*\*

		Amount	Calc.	%Drift				
1	1,2-Dibromoethane	0.250	0.240	4.0	99	0.00	2.74	2.84
2 S	4-Bromofluorobenzene	2.000	2.034	-1.7	98	0.00	3.52	3.62
3	1,2,3-Trichloropropane	0.250	0.265	-6.0	101	0.00	3.62	3.72
4	1,2-Dibromo-3-chloropr	0.250	0.266	-6.4	105	0.00	4.74	4.84

(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
dd83445.D    EDB\_HY0729.M              Wed Aug 05 08:47:26 2015

13.6.6  
13

# Continuing Calibration Summary

Job Number: JB99970  
Account: ALNJ Accutest New Jersey  
Project: SECORPAE: MHIC-Tank 616-619, Marcus Hook, PA

Sample: GDD2460-ECC2458  
Lab FileID: DD83549.D

## Evaluate Continuing Calibration Report

Signal #1 : C:\msdchem\2\DATA\0803edb\dd83549.D\ECD1A.CH Vial: 2  
Signal #2 : C:\msdchem\2\DATA\0803edb\dd83549.D\ECD2B.CH  
Acq On : 03 Aug 2015 6:38 pm Operator: natashag  
Sample : ecc2458-0.25 Inst : ECD 4  
Misc : op57086,gdd2460,35.0,,,2,1,water Multiplr: 1.00  
IntFile Signal #1: EVENTS.E IntFile Signal #2: EVENTS2.E

Method : C:\msdchem\2\METHODS\EDB\_HY0729.M (Chemstation Integrator)  
Title : EDB/DBCP by EPA 504.1 or SW846 8011  
Last Update : Fri Jul 31 09:15:07 2015  
Response via : Multiple Level Calibration

Min. RRF : 20.000 Min. Rel. Area : 50% Max. R.T. Dev 0.10min  
Max. RRF Dev : 20% Max. Rel. Area : 150%

	Compound	Amount	Calc.	%Drift	Area%	Dev(min)	RT	Window
1	1,2-Dibromoethane	0.250	0.248	0.8	92	0.00	2.48	2.58
2 S	4-Bromofluorobenzene	2.000	2.092	-4.6	97	0.00	3.30	3.40
3	1,2,3-Trichloropropane	0.250	0.264	-5.6	98	0.00	3.34	3.44
4	1,2-Dibromo-3-chloropr	0.250	0.270	-8.0	109	0.00	4.34	4.44

\*\*\*\*\* Signal #2 \*\*\*\*\*

		Amount	Calc.	%Drift				
1	1,2-Dibromoethane	0.250	0.223	10.8	92	0.00	2.74	2.84
2 S	4-Bromofluorobenzene	2.000	2.017	-0.8	98	0.00	3.52	3.62
3	1,2,3-Trichloropropane	0.250	0.257	-2.8	98	0.00	3.62	3.72
4	1,2-Dibromo-3-chloropr	0.250	0.277	-10.8	110	0.00	4.74	4.84

(#) = Out of Range                      SPCC's out = 0    CCC's out = 0  
dd83445.D    EDB\_HY0729.M              Wed Aug 05 08:47:28 2015

13.67  
13



**GC Volatiles**

---

**Raw Data**

(Accutest Laboratories Southeast, Inc.)

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Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0731edb\  
 Data File : dd83523.D  
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
 Acq On : 01 Aug 2015 12:31 am  
 Operator : natashag  
 Sample : jb99970-1  
 Misc : op57066,gdd2459,5.04,,,2,1,soil  
 ALS Vial : 37 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
 Integration File signal 2: EVENTS2.E  
 Quant Time: Aug 03 10:55:08 2015  
 Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
 Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
 QLast Update : Fri Jul 31 09:15:07 2015  
 Response via : Initial Calibration  
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
 Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
 Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID

Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
-----						
System Monitoring Compounds						
2) S 4-Bromofl...	3.353	3.575	52315	525996	2.298	2.131
Spiked Amount	2.000	Range 63 - 137	Recovery	=	114.90%	106.55%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2,3-Tri...	0.000	0.000	0	0	N.D. d	N.D. d
4) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
-----						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

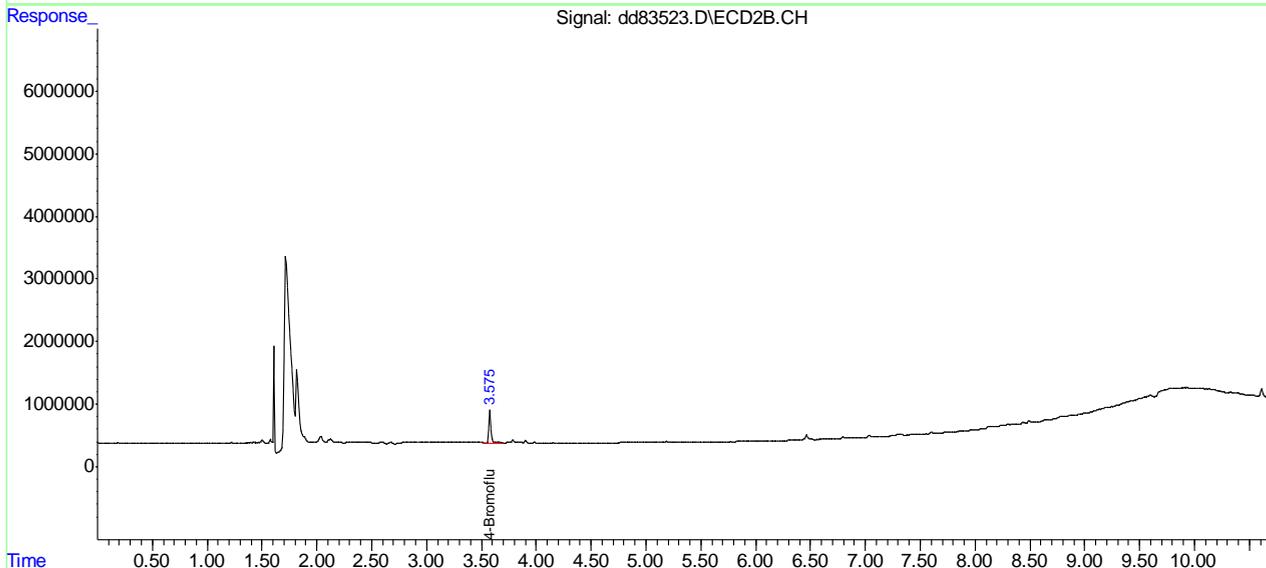
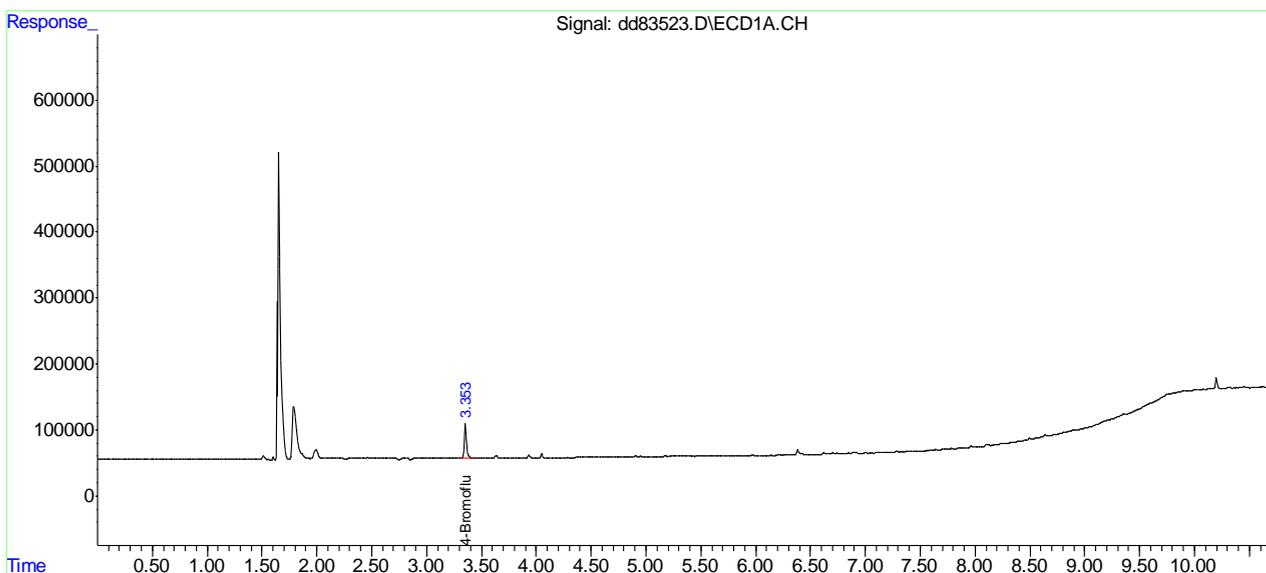
14.1.1  
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0731edb\  
 Data File : dd83523.D  
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
 Acq On : 01 Aug 2015 12:31 am  
 Operator : natashag  
 Sample : jb99970-1  
 Misc : op57066,gdd2459,5.04,,,2,1,soil  
 ALS Vial : 37 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
 Integration File signal 2: EVENTS2.E  
 Quant Time: Aug 03 10:55:08 2015  
 Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
 Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
 QLast Update : Fri Jul 31 09:15:07 2015  
 Response via : Initial Calibration  
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
 Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
 Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID



14.1.1  
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0731edb\  
 Data File : dd83524.D  
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
 Acq On : 01 Aug 2015 12:46 am  
 Operator : natashag  
 Sample : jb99970-2  
 Misc : op57066,gdd2459,5.08,,,2,1,soil  
 ALS Vial : 38 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
 Integration File signal 2: EVENTS2.E  
 Quant Time: Aug 03 10:56:44 2015  
 Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
 Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
 QLast Update : Fri Jul 31 09:15:07 2015  
 Response via : Initial Calibration  
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
 Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
 Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID

Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
-----						
System Monitoring Compounds						
2) S 4-Bromofl...	3.353	3.574	53038	521474	2.330	2.113
Spiked Amount	2.000	Range 63 - 137	Recovery	=	116.50%	105.65%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2,3-Tri...	0.000	0.000	0	0	N.D. d	N.D. d
4) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
-----						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

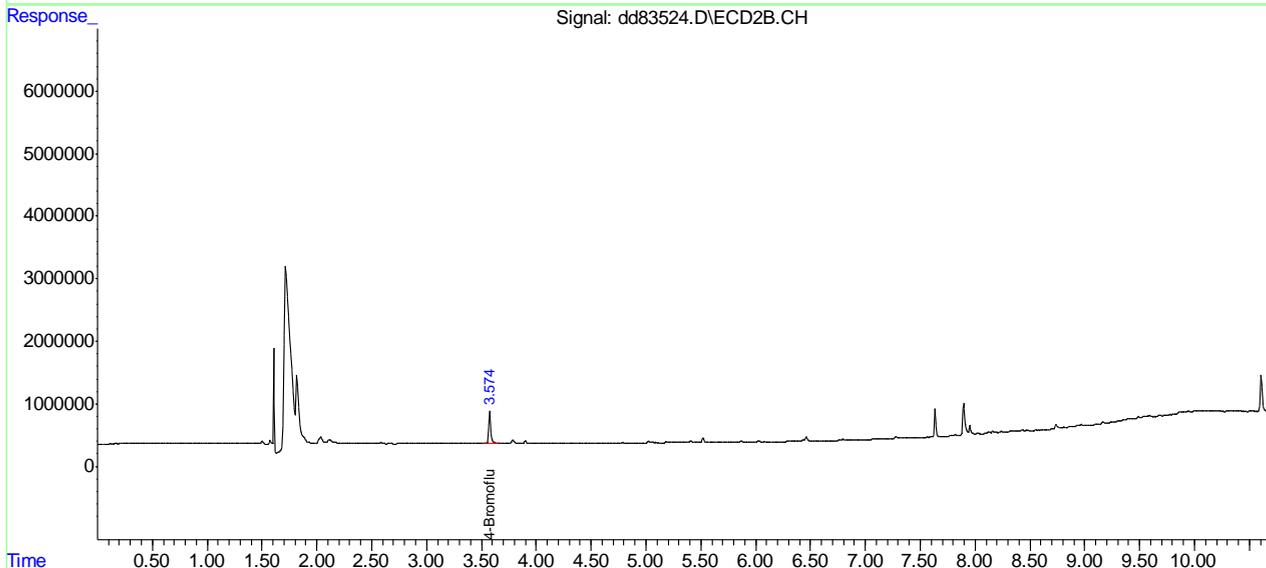
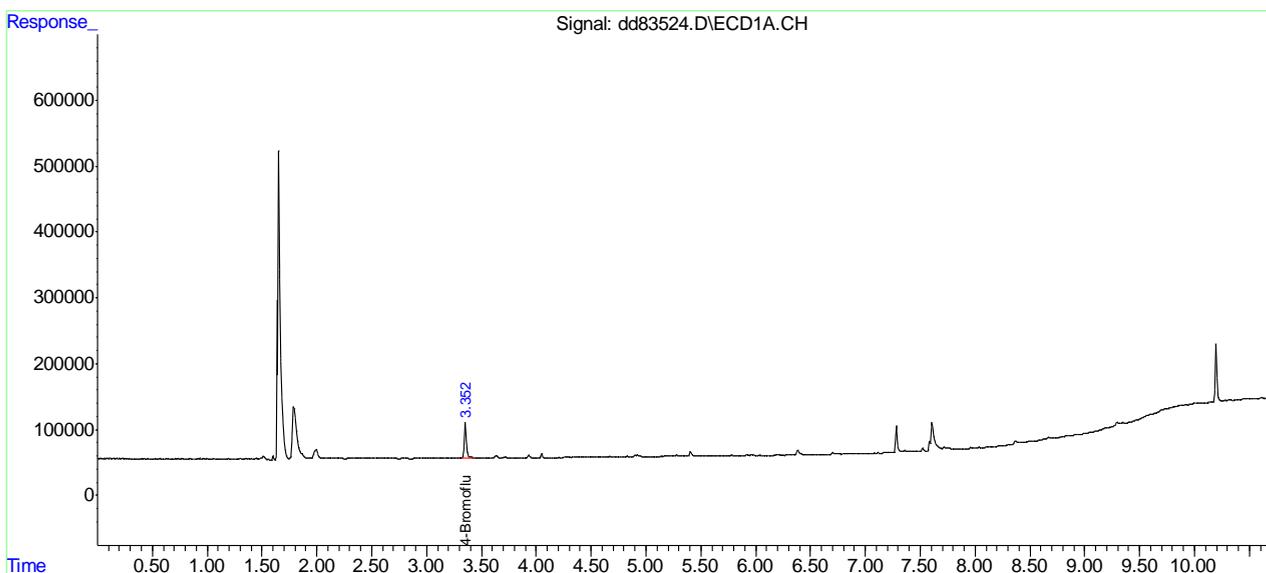
14.1.2  
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0731edb\  
Data File : dd83524.D  
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
Acq On : 01 Aug 2015 12:46 am  
Operator : natashag  
Sample : jb99970-2  
Misc : op57066,gdd2459,5.08,,,2,1,soil  
ALS Vial : 38 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
Integration File signal 2: EVENTS2.E  
Quant Time: Aug 03 10:56:44 2015  
Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
QLast Update : Fri Jul 31 09:15:07 2015  
Response via : Initial Calibration  
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID



14.1.2  
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0731edb\  
Data File : dd83525.D  
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
Acq On : 01 Aug 2015 1:01 am  
Operator : natashag  
Sample : jb99970-3  
Misc : op57066,gdd2459,5.08,,,2,1,soil  
ALS Vial : 39 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
Integration File signal 2: EVENTS2.E  
Quant Time: Aug 03 10:57:04 2015  
Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
QLast Update : Fri Jul 31 09:15:07 2015  
Response via : Initial Calibration  
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID

Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
-----						
System Monitoring Compounds						
2) S 4-Bromofl...	3.355	3.576	52420	503223	2.303	2.043
Spiked Amount	2.000	Range 63 - 137	Recovery	=	115.15%	102.15%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2,3-Tri...	0.000	0.000	0	0	N.D. d	N.D. d
4) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
-----						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

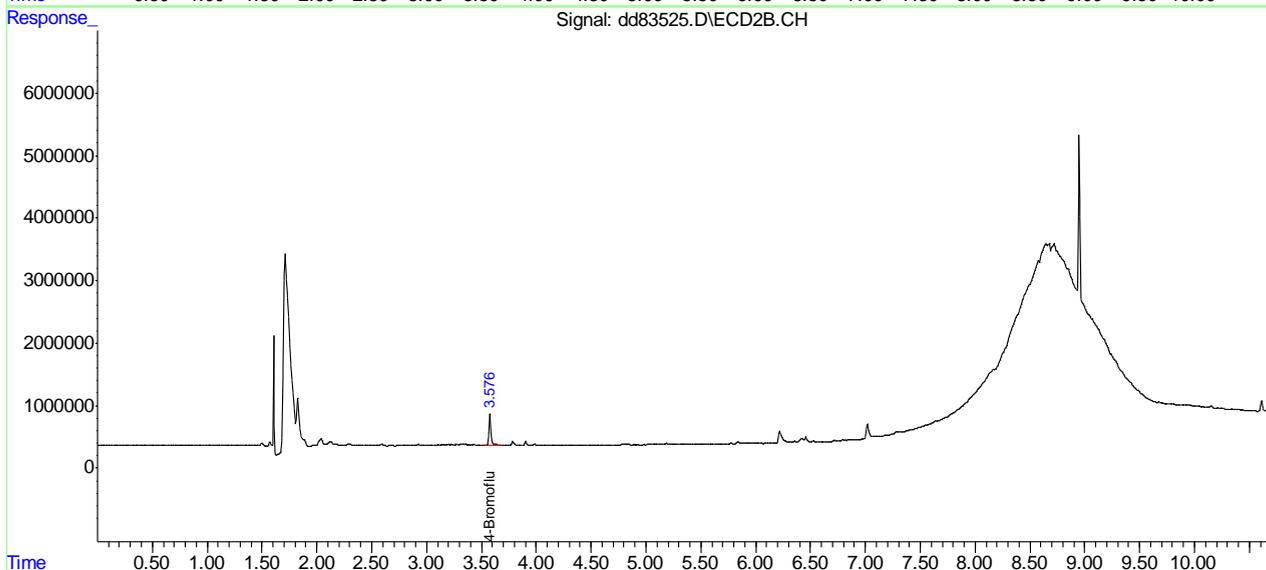
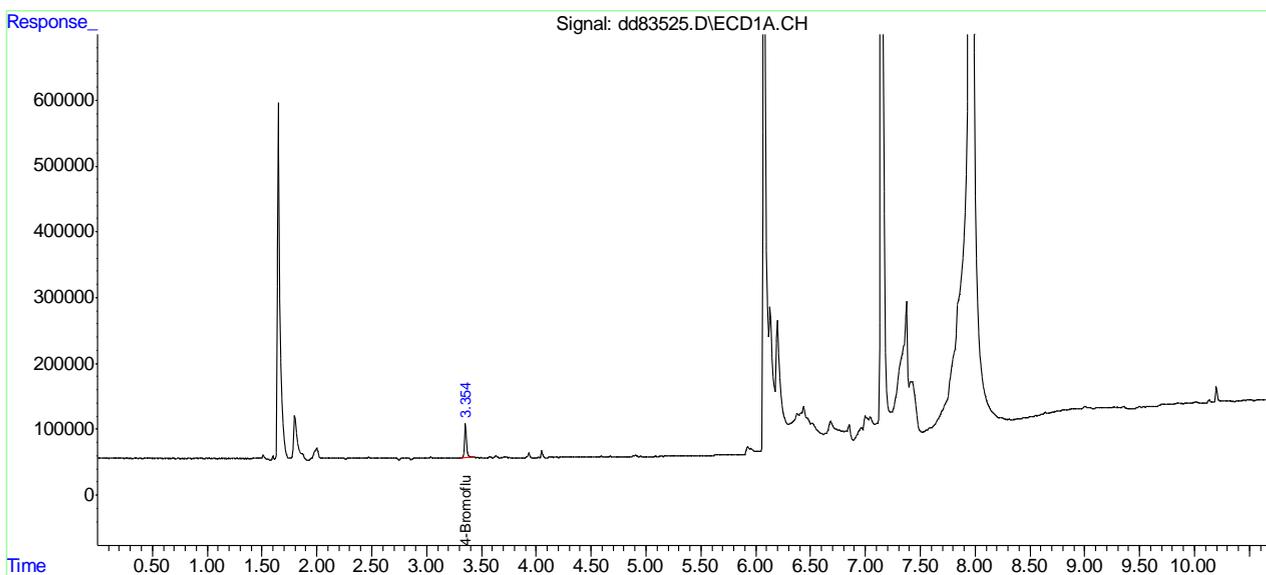
14.1.3  
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0731edb\  
Data File : dd83525.D  
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
Acq On : 01 Aug 2015 1:01 am  
Operator : natashag  
Sample : jb99970-3  
Misc : op57066,gdd2459,5.08,,,2,1,soil  
ALS Vial : 39 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
Integration File signal 2: EVENTS2.E  
Quant Time: Aug 03 10:57:04 2015  
Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
QLast Update : Fri Jul 31 09:15:07 2015  
Response via : Initial Calibration  
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID



14.1.3  
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0803edb\  
 Data File : dd83548.D  
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
 Acq On : 03 Aug 2015 6:23 pm  
 Operator : natashag  
 Sample : jb99970-11A  
 Misc : op57086,gdd2460,38.9,,,2,1,water  
 ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
 Integration File signal 2: EVENTS2.E  
 Quant Time: Aug 05 08:40:54 2015  
 Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
 Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
 QLast Update : Fri Jul 31 09:15:07 2015  
 Response via : Initial Calibration  
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
 Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
 Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID

Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
-----						
System Monitoring Compounds						
2) S 4-Bromofl...	3.353	3.575	47441	476609	2.084	1.940
Spiked Amount	2.000	Range 63 - 137	Recovery	=	104.20%	97.00%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2,3-Tri...	0.000	0.000	0	0	N.D. d	N.D. d
4) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
-----						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

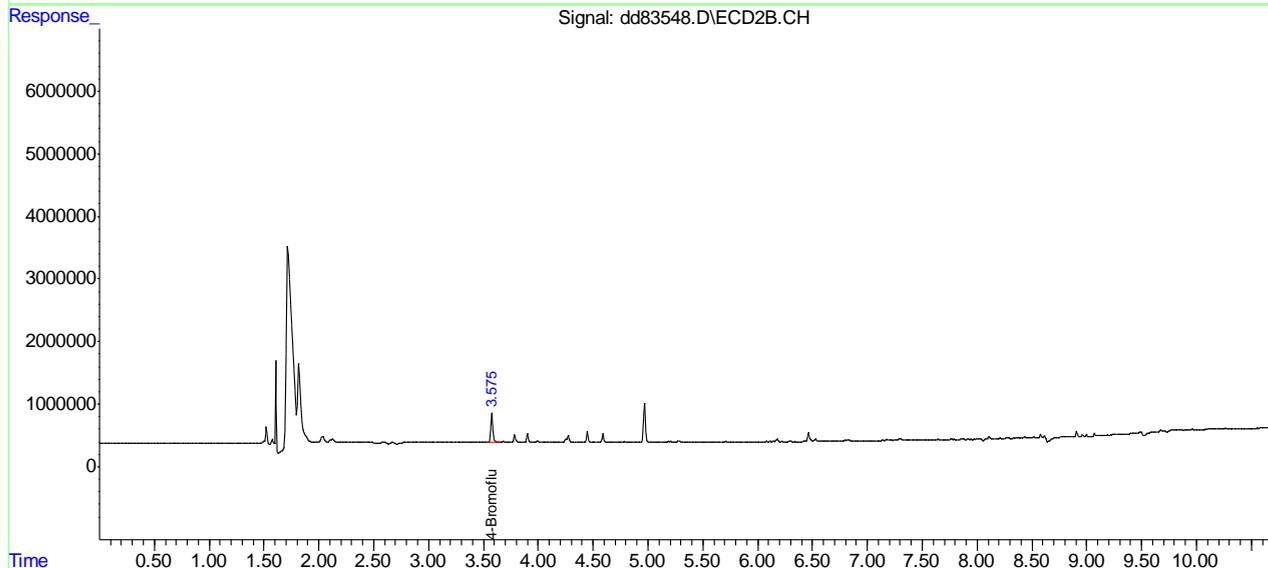
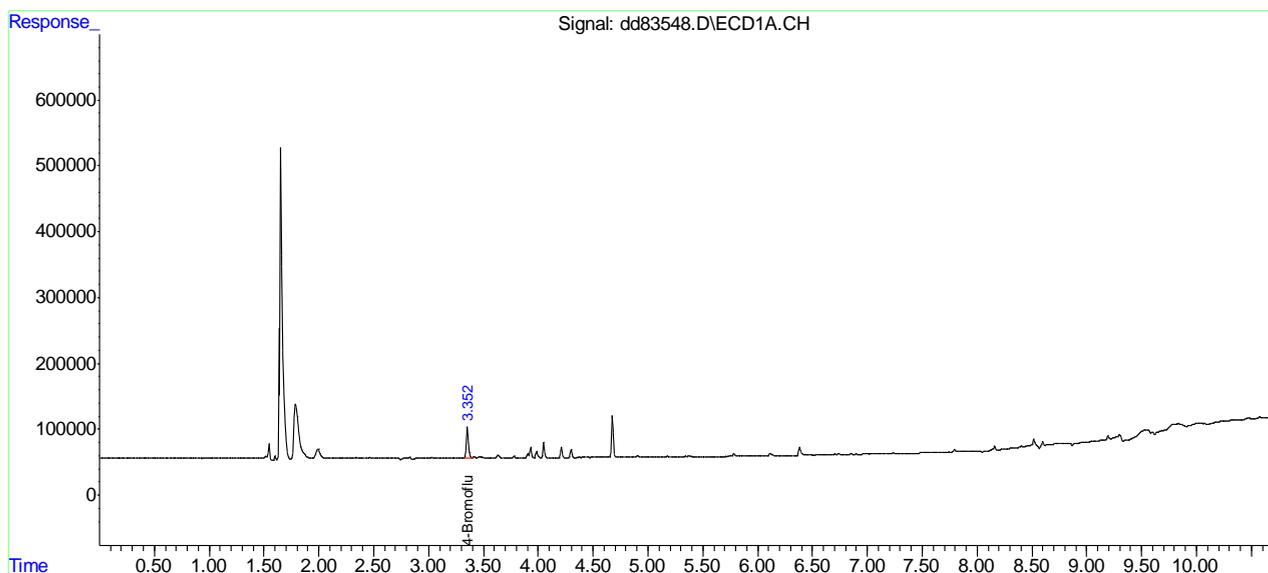
14.1.4  
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0803edb\  
Data File : dd83548.D  
Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
Acq On : 03 Aug 2015 6:23 pm  
Operator : natashag  
Sample : jb99970-11A  
Misc : op57086,gdd2460,38.9,,,2,1,water  
ALS Vial : 16 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
Integration File signal 2: EVENTS2.E  
Quant Time: Aug 05 08:40:54 2015  
Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
QLast Update : Fri Jul 31 09:15:07 2015  
Response via : Initial Calibration  
Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID



14.1.4  
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0731edb\  
 Data File : dd83515.D  
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
 Acq On : 31 Jul 2015 10:29 pm  
 Operator : natashag  
 Sample : op57066-mb  
 Misc : op57066,gdd2459,5.00,,,2,1,soil  
 ALS Vial : 31 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
 Integration File signal 2: EVENTS2.E  
 Quant Time: Aug 03 10:42:52 2015  
 Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
 Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
 QLast Update : Fri Jul 31 09:15:07 2015  
 Response via : Initial Calibration  
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
 Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
 Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID

Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
System Monitoring Compounds						
2) S 4-Bromofl...	3.354	3.576	48630	481568	2.136	1.959
Spiked Amount	2.000	Range 63 - 137	Recovery	=	106.80%	97.95%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2,3-Tri...	0.000	0.000	0	0	N.D. d	N.D. d
4) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

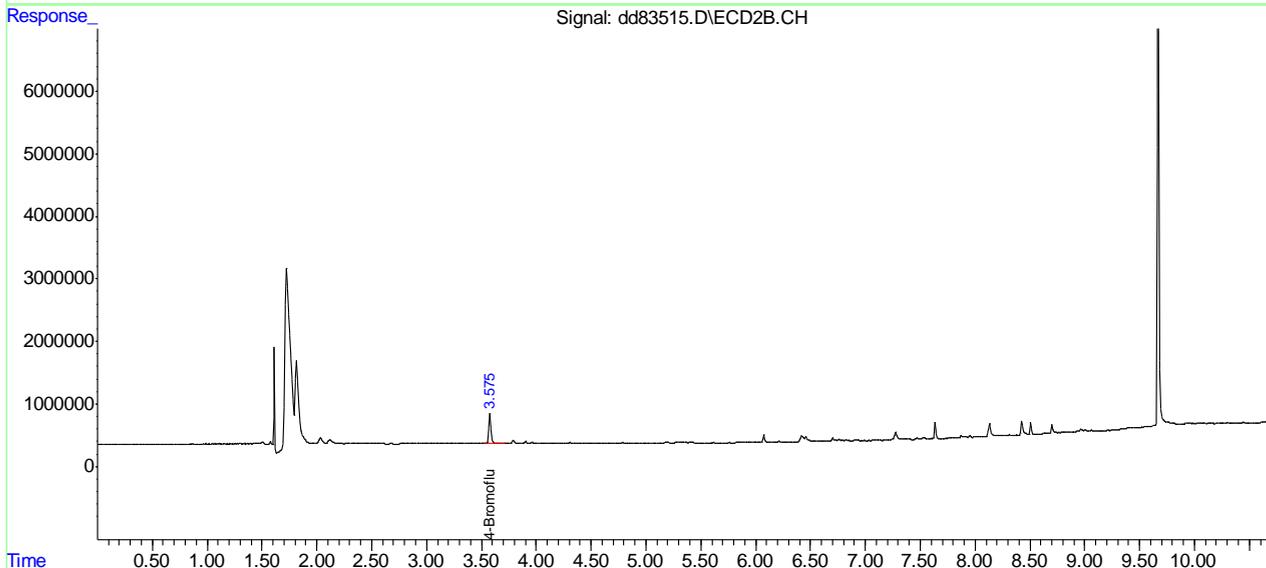
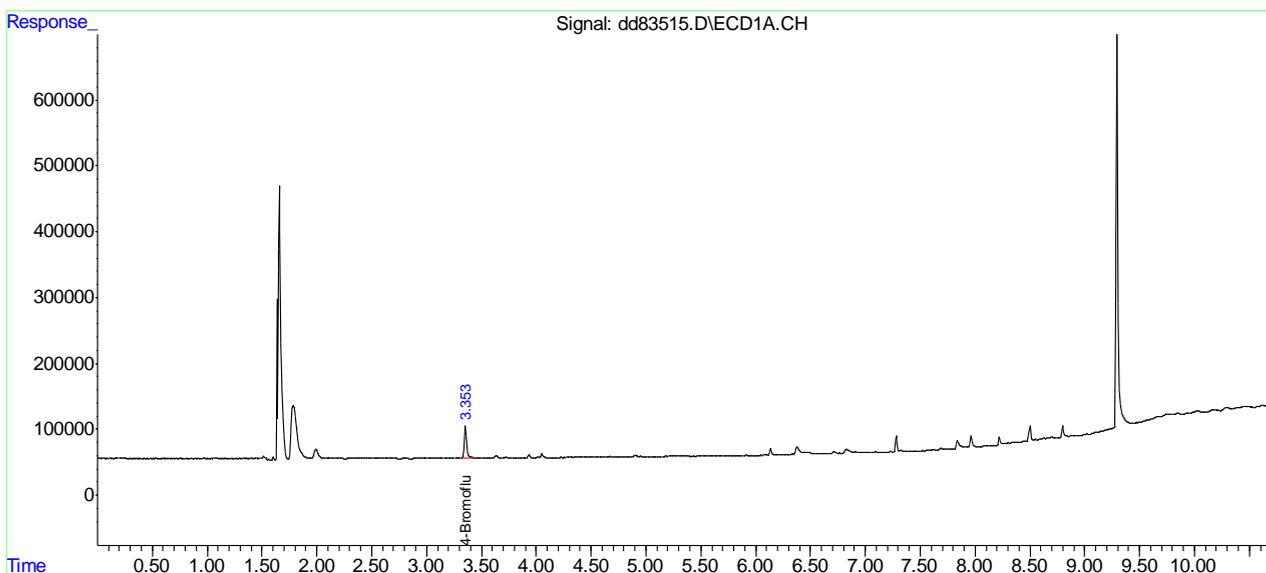
14.2.1  
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0731edb\  
 Data File : dd83515.D  
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
 Acq On : 31 Jul 2015 10:29 pm  
 Operator : natashag  
 Sample : op57066-mb  
 Misc : op57066,gdd2459,5.00,,,2,1,soil  
 ALS Vial : 31 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
 Integration File signal 2: EVENTS2.E  
 Quant Time: Aug 03 10:42:52 2015  
 Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
 Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
 QLast Update : Fri Jul 31 09:15:07 2015  
 Response via : Initial Calibration  
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
 Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
 Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID



14.2.1  
 14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0803edb\  
 Data File : dd83546.D  
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
 Acq On : 03 Aug 2015 5:53 pm  
 Operator : natashag  
 Sample : op57086-mb  
 Misc : op57086,gdd2460,35.0,,,2,1,water  
 ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
 Integration File signal 2: EVENTS2.E  
 Quant Time: Aug 05 08:36:14 2015  
 Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
 Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
 QLast Update : Fri Jul 31 09:15:07 2015  
 Response via : Initial Calibration  
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
 Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
 Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID

Compound	RT#1	RT#2	Resp#1	Resp#2	ppb	ppb
-----						
System Monitoring Compounds						
2) S 4-Bromofl...	3.353	3.575	43363	446769	1.905	1.823
Spiked Amount	2.000	Range 63 - 137	Recovery	=	95.25%	91.15%
Target Compounds						
1) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
3) 1,2,3-Tri...	0.000	0.000	0	0	N.D. d	N.D. d
4) 1,2-Dibro...	0.000	0.000	0	0	N.D. d	N.D. d
-----						

(f)=RT Delta > 1/2 Window (#)=Amounts differ by > 40% (m)=manual int.

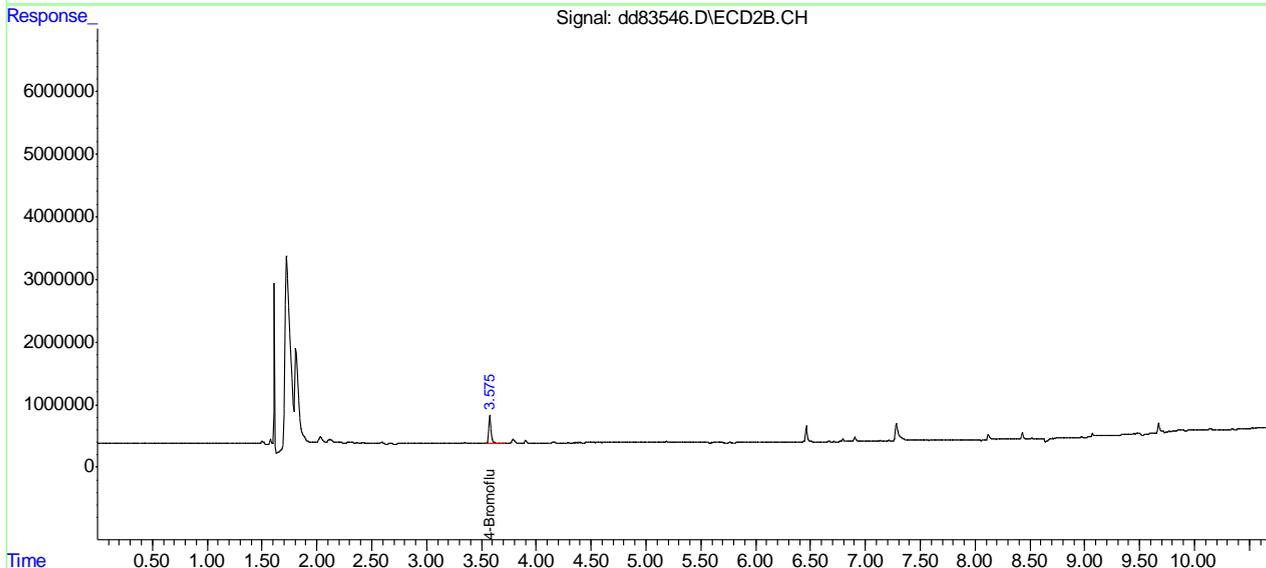
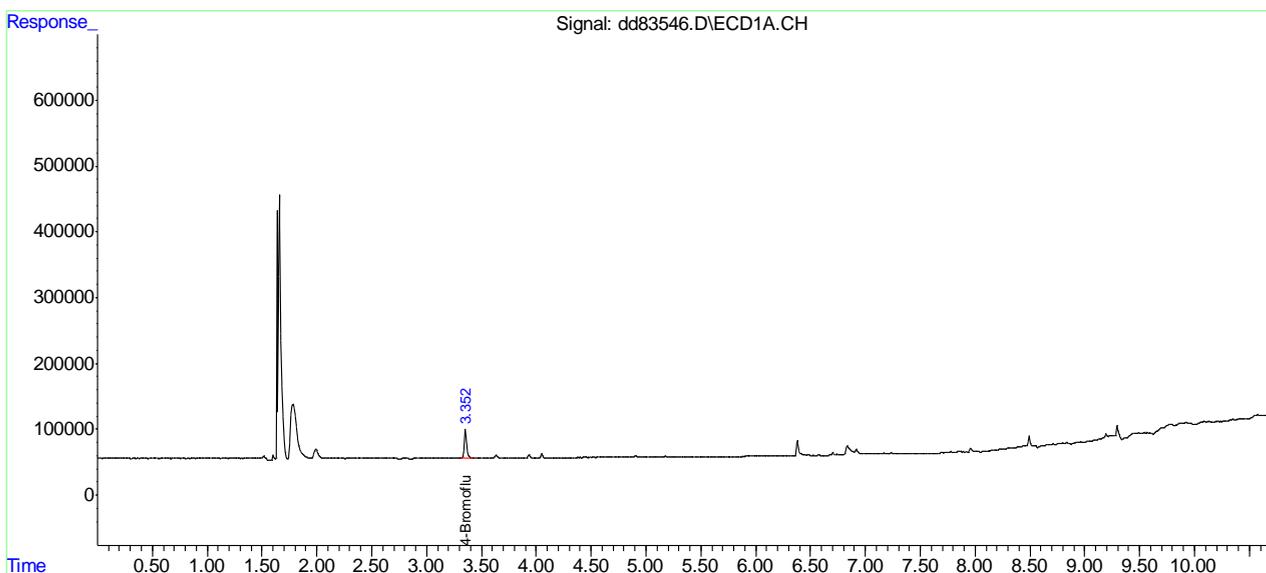
14.2.2  
14

Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\2\DATA\0803edb\  
 Data File : dd83546.D  
 Signal(s) : Signal #1: ECD1A.CH Signal #2: ECD2B.CH  
 Acq On : 03 Aug 2015 5:53 pm  
 Operator : natashag  
 Sample : op57086-mb  
 Misc : op57086,gdd2460,35.0,,,2,1,water  
 ALS Vial : 14 Sample Multiplier: 1

Integration File signal 1: EVENTS.E  
 Integration File signal 2: EVENTS2.E  
 Quant Time: Aug 05 08:36:14 2015  
 Quant Method : C:\msdchem\2\METHODS\EDB\_HY0729.M  
 Quant Title : EDB/DBCP by EPA 504.1 or SW846 8011  
 QLast Update : Fri Jul 31 09:15:07 2015  
 Response via : Initial Calibration  
 Integrator: ChemStation 6890 Scale Mode: Small noise peaks clipped

Volume Inj. : 2uL  
 Signal #1 Phase : DB-1701 Signal #2 Phase: DB-17  
 Signal #1 Info : 0.32mm ID Signal #2 Info : 0.32mm ID



14.2.2  
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